

26566

On the anisotropy of the elastic ... S/126/61/012/002/018/019  
E032/E514

the anisotropy may also be due to the fact that the thermal expansion coefficient is not the same in all directions. However, according to A. M. Belikov (Ref.10: Dissertation, MIS, 1958) the expansion coefficient along the a and c axes is in fact practically the same ( $3.84 \times 10^{-6}$  and  $3.90 \times 10^{-6}$ ). There are 1 table and 10 references: 7 Soviet and 3 non-Soviet.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut  
tverdykh splavov (All Union Scientific Research  
Institute for Hard Alloys)

SUBMITTED: March 11, 1961

Card 3/3

ACCESSION NR: AP4015266

S/0226/64/000/001/0056/0064

AUTHORS: Ivensen, V. A.; Eyduk, O. N.

TITLE: The structure of two-phase solid cermet alloys

SOURCE: Poroshkovaya metallurgiya, no. 1, 1964, 56-64

TOPIC TAGS: WC Co alloy, carbide phase structure, cobalt phase structure, binary cermet alloy, cermet, Co phase microscopic analysis, WC phase microscopic analysis

ABSTRACT: A discussion concerning the structure of WC-Co alloys is presented. It starts with a short review of the opinions expressed by other authors and a criticism of their conclusions. According to previous investigations, the analyses made with electron microscope showed that the carbide phase appeared to be continuous while the cobalt phase was concentrated in the inclusions, seemingly isolated from each other. However, this isolation was observed only in the polished sections. On the other hand, the fact that cobalt was removed from the alloy by the action of hydrochloric acid pointed to the existence of connections between the isolated cobalt areas. The authors believe that the degree of carbide grain coalescence depends on the differences in the technical process involved, and they claim that the cobalt "interlayers" between the carbide grains

Card 1/2

ACCESSION NR: APL015266

affect the physical nature of the material. It is concluded that the degree of carbide grain coalescence should be regarded as a very important structural characteristic of the alloy studied and that it should be accounted for (together with such other structural characteristics as the grain size, etc) in determining the physical properties of the WC-Co alloy. Orig. art. has: 7 photographs.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut tverdykh splavov, Moscow (All-Union Scientific Research Institute of Hard Alloys)

SUBMITTED: 13Feb64

DATE ACQ: 12Mar64

ENCL: 00

SUB CODE: ML

NO REF SOV: 009

OTHER: 008

Card 2/2

ACCESSION NR: AP4044910

S/0226/64/000/004/0043/0057

AUTHOR: Ivensen, V.A., Eyduk, O.N., Pivovarov, L.Kh.

TITLE: Some regularities in the deformation of sintered hard alloys of WC-Co

SOURCE: Poroshkovaya metallurgiya, no. 4, 1964, 43-57

TOPIC TAGS: sintered alloy, powder alloy, tungsten carbide, hard alloy, cobalt alloy, tungsten carbide alloy, alloy deformation, plastic deformation, alloy structure, yield point

ABSTRACT: It has recently been established that there is no direct relationship between the bending strength of a hard alloy and its notch toughness, and this fact has attracted interest to phenomena connected with the deformation of hard alloys. However, the relative deformations of the cobalt and the carbide phases and their separate roles in the total deformation process have not yet been clarified. In order to fill this gap, the present authors investigated the hard alloy WC-Co with respect to plastic deformation and its dependence on the composition (6-50% Co) and structure (fine grain and coarse grain). Prismatic test specimens (10x10x20 mm) of the hard alloy were deformed under the influence of gradually increasing uniaxial compressive loads. The residual

Card 1/3

ACCESSION NR: AP4044910

deformation was measured by an optimeter and the yield point was determined from logarithmic stress-strain curves, corresponding to a permanent strain of 0.1%. The lateral faces of the specimens were ground and polished before the tests, and some of the specimens were subjected to X-ray investigations before and after deformation. Such specimens were annealed at 800C before deformation to remove the strain-hardening effect produced by the grinding. The width of the radiospectrographic lines was measured by the ionization method. Grain size and angle of disorientation were computed from the number and size of the reflexes obtained photographically. These studies revealed plastic deformation of the tungsten carbide grains, as indicated by numerous bands of slippage appearing on the surface of the grains after deformation, as well as by an increase in the number of reflexes on the X-ray picture. The yield point of the hard alloy was found to be directly proportional to the relative value of the contact surface of the tungsten carbide grains. The resistance to deformation of the alloy in the initial stages is determined mainly by the resistance to deformation of the carbide skeleton. It is only after further deformation that the resistance to deformation of the strain-hardened cobalt phase is manifested. The mechanism of deformation of the carbide skeleton of the alloy does not differ in principle from that of a polycrystalline

Card 2/3

ACCESSION NR: AP4044910

metal. Orig. art. has: 4 graphs, 15 photomicrographs and 6 tables.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut tverdykh splavov  
(All-Union Scientific Research Institute of Hard Alloys)

SUBMITTED: 15Aug63

ENCL: 00

SUB CODE: MM

NO REF SOV: 003

OTHER: 006

3/3

Cord

I 20667-66 ENT(d)/ENT(m)/EMP(w)/T/EMP(t)/EMP(k) IJP(n) JD/HW/EM

ACC NR: AP6001477

SOURCE CODE: UR/0226/65/000/012/0069/0072

AUTHOR: Ivensen, V. A.; Gol'dberg, Z. A.; Eyduk, O. N.; Fal'kovskiy, V. A. <sup>55</sup> 13

ORG: All-Union Scientific Research Institute of Hard Alloys (Vsesoyuzhnyy nauchno-issledovatel'skiy institut tverdykh splavov)

TITLE: Resistance of a hard alloy to failure under impact loads <sup>16</sup>

SOURCE: Poroshkovaya metallurgiya, no. 12, 1965, 69-72

TOPIC TAGS: plastic deformation, mechanical shock resistance, specific resistance, compressive strength, ultimate stress, bending stress, data analysis, tungsten containing alloy, failure

ABSTRACT: The effect of plastic deformation of a hard alloy on its resistance to failure under impact loads was analyzed. It was shown that despite the relatively low value of plastic deformation, the latter has a great effect on the efficiency of the hard-alloy load. This was corroborated by experimental data characterizing the efficiency of a very coarse-grained and a medium-grained alloy with 20% Co. The resistance to failure and efficiency of the coarse-grained alloy is much greater than that of the medium-grained alloy despite the higher ultimate bending and compression strengths of the latter. The differ- <sup>2</sup>

Card 1/2

L 20667-66

ACC NR: AP6001477

ence in tool efficiency is explained by the greater deformability of  
the coarse-grained alloy. Orig. art. has: 1 table. [Based on author's  
abstract] [NT]

SUB CODE: 11, 20/ SUBM DATE: 13Feb65/ ORIG REF: 003/ OTH REF: 001

Card 2/2 BK



ABELEV, Yu.M.; BRAYT, P.I.; KRUTOV, V.I.; KULACHENOK, B.G.; SOROCHAN,  
Ye.A.; EYDOK, R.P.

Testing a series 1-480-P large-panel apartment house erected on  
settling soil. Osn., fund.i mekh.grun. 4 no.2:3-5 '62.  
(MIRA 15:8)

(Zaporozh'ye—Apartment houses—Testing)

ABELEV, Yuriy Mordukhovich, doktor tekhn. nauk; KRUTOV, Vladimir Ivanovich, kand. tekhn. nauk; EYDUK, Rudol'f Petrovich, st. nauchn. sotr., inzh.; POLUBNEVA, V.I., inzh., nauchn. red.

[Preparation of foundation beds and the laying of foundations of large-panel apartment houses on sagging soil; practices of the Research Institute for Foundation Beds and Underground Structures of the State Committee on Construction of the Council of Ministers of the U.S.S.R. and of the Zaporozh'ye Housing Construction Trust, and the Nikopol' Construction Foundations Trust] Podgotovka osnovanii i ustroistvo fundamentov krupnopanel'nykh zhilykh domov na prosadochnykh gruntakh; iz opyta NII osnovanii i podzemnykh sooruzhenii Gosstroia SSSR, trestov "Zaporozhzhilstroi" i "Nikopol'stoi." Moskva, Stroiizdat, 1965. 19 p. (MIRA 18:9)

1. Rukovoditel' laboratorii stroitel'stva na prosadochnykh gruntakh Nauchno-issledovatel'skogo instituta osnovaniy i podzemnykh sooruzheniy (for Abelev). 2. Laboratoriya stroitel'stva na posadochnykh gruntakh Nauchno-issledovatel'skogo instituta osnovaniy i podzemnykh sooruzheniy, Moskva (for Krutov, Eyduk).

CO

PROCESS AND PROPERTIES INDEX

A rapid method for determination of the purity of technical gypsum. J. Biduks, *Acta Univ. Latvianis, Kim. Fakultat. Ser. B*, 196, 1-4, 1-9 (in German 10)(1936).—The method depends upon the fact that a powder immersed in a liquid of similar  $n$  exhibits different degrees of color intensity, depending on the purity. Heat the gypsum to 450° or 100° to destroy org. matter. Mix the purest and least pure grades of gypsum in such proportions that the  $\text{CaSO}_4$  content increases in steps of 1%, and immerse the mint. in tech. benzene. Against the scale so constructed match the unknown for equal degree of darkness. The accuracy of the result is 1-2%. P. S. R.

COMMON ELEMENTS

OPEN

ASB-35A METALLURGICAL LITERATURE CLASSIFICATION

161088 74

161089 74

161090 74

161091 74

161092 74

161093 74

161094 74

161095 74

161096 74

161097 74

161098 74

161099 74

161100 74

161101 74

161102 74

161103 74

161104 74

161105 74

161106 74

161107 74

161108 74

161109 74

161110 74

161111 74

161112 74

161113 74

161114 74

161115 74

161116 74

161117 74

161118 74

161119 74

161120 74

161121 74

161122 74

161123 74

161124 74

161125 74

161126 74

161127 74

161128 74

161129 74

161130 74

161131 74

161132 74

161133 74

161134 74

161135 74

161136 74

161137 74

161138 74

161139 74

161140 74

161141 74

161142 74

161143 74

161144 74

161145 74

161146 74

161147 74

161148 74

161149 74

161150 74

161151 74

161152 74

161153 74

161154 74

161155 74

161156 74

161157 74

161158 74

161159 74

161160 74

161161 74

161162 74

161163 74

161164 74

161165 74

161166 74

161167 74

161168 74

161169 74

161170 74

161171 74

161172 74

161173 74

161174 74

161175 74

161176 74

161177 74

161178 74

161179 74

161180 74

161181 74

161182 74

161183 74

161184 74

161185 74

161186 74

161187 74

161188 74

161189 74

161190 74

161191 74

161192 74

161193 74

161194 74

161195 74

161196 74

161197 74

161198 74

161199 74

161200 74

161201 74

161202 74

161203 74

161204 74

161205 74

161206 74

161207 74

161208 74

161209 74

161210 74

161211 74

161212 74

161213 74

161214 74

161215 74

161216 74

161217 74

161218 74

161219 74

161220 74

161221 74

161222 74

161223 74

161224 74

161225 74

161226 74

161227 74

161228 74

161229 74

161230 74

161231 74

161232 74

161233 74

161234 74

161235 74

161236 74

161237 74

161238 74

161239 74

161240 74

161241 74

161242 74

161243 74

161244 74

161245 74

161246 74

161247 74

161248 74

161249 74

161250 74

161251 74

161252 74

161253 74

161254 74

161255 74

161256 74

161257 74

161258 74

161259 74

161260 74

161261 74

161262 74

161263 74

161264 74

161265 74

161266 74

161267 74

161268 74

161269 74

161270 74

161271 74

161272 74

161273 74

161274 74

161275 74

161276 74

161277 74

161278 74

161279 74

161280 74

161281 74

161282 74

161283 74

161284 74

161285 74

161286 74

161287 74

161288 74

161289 74

161290 74

161291 74

161292 74

161293 74

161294 74

161295 74

161296 74

161297 74

161298 74

161299 74

161300 74

161301 74

161302 74

161303 74

161304 74

161305 74

161306 74

161307 74

161308 74

161309 74

161310 74

161311 74

161312 74

161313 74

161314 74

161315 74

161316 74

161317 74

161318 74

161319 74

161320 74

161321 74

161322 74

161323 74

161324 74

161325 74

161326 74

161327 74

161328 74

161329 74

161330 74

161331 74

161332 74

161333 74

161334 74

161335 74

161336 74

161337 74

161338 74

161339 74

161340 74

161341 74

161342 74

161343 74

161344 74

161345 74

161346 74

161347 74

161348 74

161349 74

161350 74

161351 74

161352 74

161353 74

161354 74

161355 74

161356 74

161357 74

161358 74

161359 74

161360 74

161361 74

161362

19

PROCESSES AND PROPERTIES INDEX

Letvina clays as raw materials for the preparation of  
 clinkers (ceramic bodies). J. Rikduks. *Acta Univ. Lat-  
 viensis, Kim. Fabrika. Ser. B, NO. 1-4, 35-125 (in Ger-  
 man 126-41) (1936).*—The clays belong to the Devonian  
 (D.), Tertiary (T.) and Quaternary (Q.). They contain  
 much Fe and alkalis, and also Ti. The max. contents  
 are, FeO, 12.4, K<sub>2</sub>O and Na<sub>2</sub>O 6.9, TiO<sub>2</sub> 1.15 and Al<sub>2</sub>O<sub>3</sub>  
 23.4%. The aluminas in the D. clays are mostly in mica  
 and feldspar. More mica is present in the D. than in the  
 Q. clays. The D. clays melt at cones 8-14 and the Q. at  
 2-7. The addn. of fine sand is desirable. Specimens  
 burned in a reducing atm. are more red. in acid than those  
 burned in an oxidizing atm. Decomn. of Fe<sub>2</sub>O<sub>3</sub> to lower  
 oxides took place at 1100° and above. P. S. Roller

ASB-5LA METALLURGICAL LITERATURE CLASSIFICATION

SEPTEMBER

L 32244-65 ENT(d)/ENP(e)/ENT(m)/ENA(d)/ENP(v)/T/ENP(t)/ENP(k)/ENP(n)/ENP(b)/  
ENP(1) Pp-4 IJP(c) JD/JG

ACCESSION NR: AR5004771

S/0137/64/000/010/G036/G036

SOURCE: Ref. zh. Metallurgiya, Abs. 100245

AUTHOR: Vodop'yanova, L. S.; Marychev, V. V.; Eyduk, Yu. A.

TITLE: Study of high temperature sintering of tungsten

CITED SOURCE: Sb. tr. Vses. n.-1. in-t tverdykh splavov, no. 5,  
1964, 221-224

TOPIC TAGS: tungsten, powder metallurgy, powder metal pressing,  
sintering, temperature dependence, impurity content, vacuum refining

TRANSLATION: Tungsten powder prepared by reduction of  $WO_3$  was pressed on a hydraulic press under a pressure of 2 tons/cm<sup>2</sup>. The resulting molded pieces, which had a low density, were first sintered in a hydrogen atmosphere at 750-800° (1-1.5 hrs). Final sintering of the molded pieces was done in a TsEP-302 vacuum welding machine under a vacuum of 10<sup>-3</sup> mm Hg and a rate of temperature increase of 500°/min. The molded pieces began to sinter at 1300-1500°. The rate of sintering increased sharply when the temperature was

Card 1/2

L 32244-65

ACCESSION NR: AR5004771

raised to 2400°. Further temperature increase was not accompanied by any significant increase in the density of the molded pieces. Silicon impurities (in the form of elemental silicon) and copper impurities were eliminated at 1300°, calcium, chromium, iron, and nickel impurities at 1600-1800°, and aluminum impurities at 2000-2200°. Oxygen was intensively eliminated at temperatures above 2200°. The oxygen content in tungsten sintered at 2200° did not exceed 0.005%. V. Neshpor.

SUB CODE: MM

ENCL: 00

Card 2/2

EYDUK, Yu.Ya.

EYDUK, Yu Ya. -- "Characteristics of Clays of the Latvian SSR and Their Suitability for Making Clinker Shapes." Latvian State U, 1949. In Latvian (Dissertation for the Degree of Candidate of Chemical Sciences)

SO: Izvestiya Ak. Nauk Latvviyskoy SSR, No. 9, Sept., 1955

IYEVII 'SH, A.F.[Ievinš, A.], glav. red.; EYDOK, Yu.Ya.[Eiduks, J.],  
zam. glav. red.; VAYVAD, A.Ya.[Vaivads, A.], red.; KUKURS,  
O.K., red.; MAKSIMOVA, O.S., red.; UPITE, A.Yu., red.;  
DYMARSKAYA, O., red.

[Glazes, their production and application] Glazuri, ikh  
proizvodstvo i primenenie. Riga, Izd-vo AN Latviiskoi SSH,  
1964. 249 p. (MIRA 18:4)

1. Latvijas Padomju Socialistiskas Republikas Zinatnu  
Akademija. Kimijas instituts.



EYJUKS, Ya.

BIDANS, J.; HOFMANIS, B.

Method for rapid determination of hydrate water in gypsum which contains dolomite. Latvijas PSR Zinatnu Akad. Vestis '49, No.7, 85-90. (MLRA 4:1) (CA 48 no.1:341 '54)

EIDUKS, Yu.

Brit Abs B1  
June 1953

Building and road-  
making materials

(5)  
7mol

Use of gypsum wastes as a source of bonding agents.  
Yu. Eiduks, A. Valvuds, A. Apinis, and B. Holman (*Kim. Inst.  
Zinatists Raksti, Riga*, 1950, 1, 5-33).—The wastes contain  
48-65% of  $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$ , 15-33% of dolomite, and 12-20%  
of clay; when heated to  $170^\circ$  they yield a second-grade plaster of  
Paris, and a product resembling anhydrite cement is obtained with  
optimum mechanical properties by calcination at  $750-850^\circ$  with  
1% of  $\text{NaHSO}_4$  + 5% of  $\text{CaO}$  + 15% of open-hearth slag: it contains  
 $\text{CaSO}_4$  with small quantities of  $\text{CaO}$ ,  $\text{Al}_2\text{O}_3$  +  $2\text{CaO}$ ,  $\text{SiO}_2$ .

EYDJR, YJ.

3

Brit Abst. BI  
June 1953  
Building and  
Road MAKING  
Materials

Possibility of extending the range of Portland cements in the Latvian SSR. K. Karlson, Yu. Edduks, and A. Valvads (Kiev. Inst. Zinatniskie Raksti, Riga, 1950, 1, 171-188).—The conditions are established for obtaining high-grade Portland cement by firing at 1485° a mixture of clay from the Brotsensk district with lime, the coeff. of saturation of  $\text{SiO}_2$  by  $\text{CaO}$  in the clinker being 0.94. In an attempt to find suitable pozzuolanic Portland cement mixtures, it is established that the most suitable "hydraulic" addition is clay from the Kengarag district, fired at 900°, since the cement produced with it is salt-resistant and stronger after storage in water for 180 days than plain Portland cement. The suitability of a fired clay for this purpose can be assessed from an analysis of the  $\text{H}_2\text{O}$  extract from it: <5% of the  $\text{Al}_2\text{O}_3$  in the clay should be present. R. C. MURRAY.

EIDUKS, J.

Chemical Abstracts  
Vol. 48 No. 5  
Mar. 10, 1954  
Cement, Concrete, and Other  
Building Materials

(4)  
Suitability of local (Latvian) dolomite and lime marls for the production of Roman cement. — J. Eiduks, A. Valvads, and V. Mjagkova (Acad. Sci. Latv. S.S.R., Riga). *Latvian PSR Zinatnu Akad. Vests* 1950, No. 12 (Whole No. 41), 147-60 (Russian summary, 101-2). — The Riga district dolomite marls investigated had the following hydraulic moduli and  $\text{CaCO}_3/\text{MgCO}_3$  ratios, resp.: marl I, 1.89, 1/0.967; II, 1.55-2.54, 1/0.947-0.695; III, 1.93-2.37, 1/0.951-0.930. The lime marl (IV) had modulus 1.73-2.23 and contained 72.2-78.2%  $\text{CaCO}_3$ . From I, II, and III, satisfactory Roman cements were obtained by baking at 800-850°. Addn. of 1-5% gypsum increased the strength by 10-60% but influenced the hardening time only slightly. IV gave Roman cement upon baking above 1100°. Generally, good cement could be obtained from dolomite marls if they contained over 10% of homogeneously dispersed clay and were baked until the product was left with 4-8%  $\text{CO}_2$  content; e.g., heating for 6 hrs. at 760-850° gave best results with piece size 20 X 40 mm. Lime marls were suitable if they contained more than 20%, preferably 25-35%, clay. The mechanism of hardening is discussed on the basis of thermal analysis curves of the products. — A. D.

EIDUKS, J.

Chemical Abstracts  
May 3, 1954  
Glass, Clay Products

3

Lead- and boron-free glazes. J. Eiduks and H. Gode.  
Latvian PSK Zinšins Akad. Vēstis 1950, No. 12 (Whole  
No. 41), 163-200 (in Russian; Latvian summary, 170).—  
Studies were made of the effects of alkali, CaO and MgO,  
ZnO and BaO, Fe<sub>2</sub>O<sub>3</sub>, P, B<sub>2</sub>O<sub>3</sub>, Al<sub>2</sub>O<sub>3</sub> and SiO<sub>2</sub> on glazes  
fired at 900-1000°. The glazes listed below were prepared  
and tested; they are suggested for further study. 0.4  
K<sub>2</sub>O + Na<sub>2</sub>O, 0.15-0.2 CaO + MgO; 0.4-0.45 BaO +  
ZnO, 0.05-0.07 Al<sub>2</sub>O<sub>3</sub>, 0.05-0.07 Fe<sub>2</sub>O<sub>3</sub>, 1.8 SiO<sub>2</sub>. This  
glaze is clear and has good lustre. Thin layer gives little  
noticeable craze. The glaze 0.2-0.25 Na<sub>2</sub>O, 0-0.1 K<sub>2</sub>O,  
0.15-0.2 CaO + MgO, 0.5-0.6 BaO + ZnO, 0.15-0.2  
Al<sub>2</sub>O<sub>3</sub>, 0.15 Fe<sub>2</sub>O<sub>3</sub>, 3.0-3.2 SiO<sub>2</sub>, 0.4-0.5 B<sub>2</sub>O<sub>3</sub> has the same  
characteristics as the previous glaze and also withstands a  
120° temp. difference. In the absence of BaO and ZnO,  
the following glaze is suggested: 0.6-0.7 K<sub>2</sub>O + Na<sub>2</sub>O,  
0.3-0.4 CaO + MgO, 0.1 Al<sub>2</sub>O<sub>3</sub>, 0.5-0.6 Fe<sub>2</sub>O<sub>3</sub>, 1.8 SiO<sub>2</sub>,  
0.4-0.5 B<sub>2</sub>O<sub>3</sub>. The following glaze will withstand a 160°  
temp. difference: 0.4 Na<sub>2</sub>O + K<sub>2</sub>O, 0.15-0.25 CaO +  
MgO, 0.35-0.45 BaO + ZnO, 0.05-0.07 Al<sub>2</sub>O<sub>3</sub>, 0.15-0.2  
Fe<sub>2</sub>O<sub>3</sub>, 2.0-2.6 SiO<sub>2</sub>, 0.1-0.2 SiF<sub>4</sub>. B. Z. Kamich

1. EIDUKS, J.: VAIVADS, A.: PILSKALNE, A.
2. USSR (600)
4. Latvia - Clay
7. Adsorption properties of various clays of the Latvian S.S.R.  
Latv. PSR Zin. Akad. Vestis 2, 1951.

9. Monthly List of Russian Accessions, Library of Congress, January 1953. Unclassified.

1. EYDUKS, J.; VAYVADS, A.; CIRULIS, Fr.
2. USSR. 600
4. Paper Industry
7. Fillers for paper from local raw materials, Latv. PSR Zin. Akad. Vestis, No. 9, 1951.
9. Monthly List of Russian Accessions, Library of Congress, April 1953, Uncl.

Y. Ya.

5

Bonding materials in gypsum quarry wastes. A. Valvade,  
L. Edlaks, and H. Hofmanns. *Ibid. Nauk Latv. S.S.R.*  
*1953, 180 pp. (in Russian).*  
Waste from gypsum quarries in the Riga region consist of  
(A) gypsum high in dolomite, (B) gypsum high in clay, (C)  
fibrous gypsum, and (D) av. waste rock. Firing of (D) at  
170-200° gives a product having the characteristics of  
"molding plaster." Waste contg. gypsum 20-40, clay  
35-50, and dolomite 45-10%, fired at 350-400°, has a tensile  
strength of 10.5 kg./sq. cm., after setting (7 days). This,  
fired at 750-850°, gives a cementlike product, in which dolo-  
mite acts as activator. Bonding properties are enhanced  
by the increase of gypsum in waste, but are decreased by  
firing at temps. higher than 900°. Activators such as 1%  
NaHSO<sub>4</sub>, 5% CaO, 15% open-hearth furnace slag, burnt  
dolomite, FeSO<sub>4</sub>, and Na<sub>2</sub>SO<sub>4</sub> improve bonding properties on  
firing at 300-700°, but have little effect on firing at temps.  
higher than 750°. Dissoen. of CaSO<sub>4</sub> for (B) is 0.34% at  
800° and 35% at 1100°; for (C), 3.63% at 1300°. X-rays  
of waste fired at higher temp. indicate a deformation of the  
CaSO<sub>4</sub> cryst. lattice (formation of solid soln.). The bond-  
ing properties are due to the hemihydrate, anhydride, and  
clays, when fired at 150-300°, and to the activated (by  
MgO) anhydride and hydraulic minerals at 700-900°. (A)  
gives a product with a longer setting time, when fired at  
750-850°; it is easily activated by open-hearth furnace slag,  
is resistant to moisture, and has the mech. strength of  
Roman cement. The presence of hydraulic minerals (CaO-  
Al<sub>2</sub>O<sub>3</sub>, 2CaO.Fe<sub>2</sub>O<sub>3</sub>, β-2CaO.SiO<sub>2</sub>) gives more stability in  
humid conditions, but owing to the soln. of gypsum the sta-  
bility is poor in water. (D) fired at 750-850° is more stable  
toward humidity and water than is (C). R. S. L.

227



EYDUKS, Y

Concretions in Tūjas Middle-Devonian clays. J. Eiduks, V. Dikmane, and K. Karlsons. *Latvijas PSR Zinātņu Akad. Vēstis* 1953, No. 2 (Whole No. 67), 91-7 (Russian summary, 98).—The concretions in the Tūjas (Latvia) Middle-Devonian clays were principally dolomitic. They decreased the firing shrinkage and the bend strength, and increased the water absorption of the products. To obtain satisfactory products, the concretions should be avoided or removed, and the content of the dustlike particles should be below 7% when the sand content is 1% and below 12% when the sand content is below 0.4%. A. D.

2

EYDUKS, Y.

✓ Production of new mortar binders from waste of gypsum mines under industrial conditions. J. Ekluks, A. Valvads, and B. Hofmanis. *Latvijas PSR Zinatnu Akad. Vēstis* 1953, No. 4 (Whole No. 69), 91-6 (Russian summary, 96-7).—Waste from gypsum mines contained  $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$  67, dolomite 13.1, and clay 19%. In gypsum stills, at 100-80°, the waste gave a product conforming to specifications for the first grade plaster quality gypsum. In rotation furnace with gases 490-850° in and 180-70° out, a product equivalent to the second grade gypsum was obtained; its properties improved with storage. In the lime oven at 1000-1100°, the product obtained was similar to anhydrite cement, with CaS 1.11, free CaO 14.9, and free MgO 7.5%. The presence of CaS caused nonuniformity of vol. change, which could be amended by storage or by addn. of 0.5-1.0%  $\text{FeSO}_4$ .  
Andrew Dravnicki

2

~~XXXXXXXXXX~~  
EYDUKS.Y.

4

Thermographic and x-ray diffraction studies of the mineralogical composition of various Latvian Quaternary clays. I. Bidule, and A. Vajns (Inst. Chem. Acad. Sci. Latv. S.S.R., Riga). Latvian P.S.R. Zinatnu Akad. Vestis 1933, No. 11 (Whole No. 74), 103-10 (Russian summary).—The main constituent of the Latvian Quaternary clays was hydromica (illite) in the Krustpils, Aknistes, and Ozolnieki clays, and another hydromica which was closer to mica than the illite, in the Kalcienas, Kalkūni, and Brocēni clays. In addition, these clays contained montmorillonite as a transformation product of illite. Accessory minerals were quartz, muscovite, dolomite, hydrogoussite, etc. No kaolinite or halloysite was detected. Andrew Dravnieks.

①  
MST

EYDUKS, I.

1 Thermographic and röntgenographic studies of mineralogical composition of some Latvian Devonian, Triassic, and Jurassic clays. I. Eiduks and A. Vaivads (Inst. Chem., Acad. Sci. Latv. S.S.R., Riga). *Latvian SSR Zinatnu Akad. Vestis* 1953, No. 10 (Whole No. 76), 125-35 (Russian summary, 136).—Latvian Devonian, Triassic, and Jurassic clays consist mainly of the Illite-type hydromica in various stages of degradation. In Rosica and Pulvernieki Jurassic clays the degradation reached kaolinite (20-50%). In most clays, Na and Mg montmorillonite with rather poorly defined lattice were present in varying amts. The Kengaraga and Saurieši clays belonged to the beidellite type, contg. kaolinite and halloysite (10%). Triassic clays were similar to the Devonian clays. In all clays, hydrated muscovite could be found.

Andrew Dravnieks

kk

(1)

EYDUKS, Ya.

Thermal expansion coefficients of fired Latvian clays.  
J. Eiluks and A. Vaivads. *Latvian SSR Zinatnu Akad.*  
*Veisti* 1953, No. 12 (Whole No. 77), 131-9 (Russian sum-  
mary, 139-40).—The linear thermal expansion coeff. ( $\alpha$ )  
of Latvian clays fired at 800-1000° was  $10 \times 10^{-6}$  or less.  
Quaternary clays had higher  $\alpha$  than the Devonian. Pre-  
sence of carbonates increased  $\alpha$ . In the quartz-bearing  
types,  $\alpha$  increased proportionally with temp. to 400-450°,  
and increased rapidly between 450 and 600°. A. U. *K*

EYDUKS, Ya.

7

Variation of properties of lead-free and boron-free vitreous enamels with the fritting temperature. - J. Eydus and A. Pavlov (Chem. Ind., Acad. Sci. Latvian S.S.R., Riga), Latvian PSR Zinatnu Akad. Vestis 1954, No. 1 (Whole No. 78), 122-38 (Russian summary, 139). The following frits were investigated:  $\text{Na}_2\text{O}$  0.20,  $\text{K}_2\text{O}$  0.20,  $\text{CaO}$  0.10,  $\text{MgO}$  0.03,  $\text{ZnO}$  0.30,  $\text{BaO}$  0.12,  $\text{Al}_2\text{O}_3$  0.10, and  $\text{SiO}_2$  3.0 moles, and with 0, 0.40, or 0.80 mole F. The best properties were obtained by fritting at 1250-1300°. F decreased the melting temp., alk. of the suspension, and coating temp., but increased the wetting ability of the enamel. The amt. of F left after fritting at 1400° was 0.2-1.1%. The linear thermal expansion coeff. decreased with fritting temp.; this change was larger in the F-bearing enamels. The best enameling temp. decreased by 20-100° with increase in the fritting temp., for the F-bearing types, but did not change in the F-free compns.

Andrew Dravuleks

EXDURS, 1.

Some mineralogical and physicochemical properties of  
clays from Cēsis Mārija. I. Biduka and H. Matkone  
(Inst. Chem., Acad. Sci. Latv. S.S.R., Riga). Latvian  
PSR Zinātņu Akad. Vēsts 1934, No. 4 (Whole No. 81), 101-  
11 (Russian summary, 111-12).—The Devonian clays from  
Cēsis Mārija, Latvia, are purple, green, and brown-red.  
The properties of the clays and their fractions are described.  
The substance of the finest particles was essentially the same  
throughout the formation, but the differences in color and  
other properties were traced to the variations in the contents  
of iron oxides, mica, montmorillonite, quartz, feldspar, and  
accessory trace minerals, in the fractions of the larger par-  
ticle sizes. The large inclusions are primarily dolomitic  
and seem to have formed simultaneously with the pptn. of the  
clays from the geot. lakes. A. Dravnieks.

BYDOKS, I.

Ceramic, physical, and chemical properties of some Csis Mirleja clays. *Izvestiya Akad. Nauk SSSR, Seriya Khim. Nauk*, 1954, No. 6 (Whole No. 83), 119-20 (Russian summary, 123-24).—Csis Mirleja clays were water-stable after firing at 550-600°. The difference between the max. firing temp. and clinkering temp. was 50-90° for the carbonate-free clays and less for the carbonate-bearing samples. The basic clay substance, with particle size below 0.005 mm., was sintered in vac. and showed a higher vol. increase at a lower temp., compared with the bulk clay. The soly. in boiling 2N HCl reached a max. at the firing temp. (750-800°). The dissolved portion contained 27-30% silica and 81-85% alumina. Tech. applications of these clays are discussed. Andrew Dravnick.



USSR

Influence of lithium on physicochemical characteristics of low-melting (ceramic) glasses. J. Eshuky and A. Vulyada. *Litvijs PSR Zinatyn Akad. Vestis* 1954, No. 11 (Whole No. 88), 116-20 (in Russian).—Low-melting (ceramic) glasses were prepared from quartz sand and chemically pure substances. In amounts up to 7.5%  $\text{Li}_2\text{O}$  was introduced as  $\text{Li}_2\text{CO}_3$ , substituting first on molar basis for Na, K, Ca, and Mg, and then, on wt. % basis, for other elements, starting with a base mixt. (in %):  $\text{SiO}_2$  69.40,  $\text{Al}_2\text{O}_3$  11.03,  $\text{Na}_2\text{O}$  7.0,  $\text{K}_2\text{O}$  7.08,  $\text{CaO}$  2.13,  $\text{MgO}$  1.2. The mixt. was fritted at  $1300^\circ$ . Substitution of Li for Na decreased the softening temp. (I) and the temp. (II) at which the liquid phase begins to form. These effects reached a max. at 0.14 mol. %  $\text{Li}_2\text{O}$ . At higher addn., I and II increased again. Substitution of Li for K, Ca, Mg, Si, and Al decreased I and II. The thermal expansion coeff. (III) decreased in substitution of Li for Na to a min. above 3.8 wt. %  $\text{Li}_2\text{O}$ . In substituting Li for K, III decreased to a min. at 1.17-2.67  $\text{Li}_2\text{O}$ , then, at higher Li content, increased. In substituting Li for Ca, III slightly decreased; for Mg, slightly increased. pH of

1/2

0581

9. Eideuks etc.

suspension was 10-11, and increased with Li content. The ease of grinding increased with substitution of Li for K and Na, decreased with substitution for Ca and Mg. Gloss was the best in mixts. where part of K was substituted by Li; in other substitutions, the gloss changed little. Crystn. (IV) intensified when Li content exceeded 1%. The wetting ability of the molten frits, as measured by the method of contact angles, was generally poor, and did not change by substitution of Li for K, but improved when Li substituted for other components. From considerations of I, II, III, and IV, optimum for Li content was 0.8-1.0%. For articles made of clays contg. 15% carbonates, the best mixt. was (%): SiO<sub>2</sub> 70.3, Al<sub>2</sub>O<sub>3</sub> 12, Na<sub>2</sub>O 7.7, K<sub>2</sub>O 8.0, CaO 2.2, MgO 1.3, Li<sub>2</sub>O 0.68, with III  $73 \times 10^{-3}$ . For fulence three following mixts. are suggested, to be fired at 1020-50°: SiO<sub>2</sub> 70.4, 71.2, 73.3; Al<sub>2</sub>O<sub>3</sub> 12.1, 12.2, 12.6; Na<sub>2</sub>O 5.2, 7.8, 8.0; K<sub>2</sub>O 7.8, 7.3, 6.0; CaO 2.2, 2.2, 2.2; MgO 1.2, 1.2, 1.3; Li<sub>2</sub>O 1.16, 1.17, 2.57. Application of thermographic analysis to detn. of softening, m., and liquidus temp., and crystn. is described.

Andrew Draynieks

LYBOKS, I.

USSR.

1. Increase of the thermal expansion coefficient of ceramic materials. A. Valvada and I. Elduka. *Latvian SSR Zinatnu Akad. Vēstis* 1955, No. 1 (Whole No. 90), 139-48 (Russian summary, 148-9).—The influence of various addns. on thermal expansion coeff. ( $\alpha$ ) of clays was studied at firing temps. 800-1000°, in an attempt to increase  $\alpha$  of several Latvian clays from  $47-83 \times 10^{-6}$  to  $70-88 \times 10^{-6}$ , so as to match  $\alpha$  of Pb- and Bi-free ceramic glazes. Addn. of 20-30% limestone (II) or dolomite (III) increased  $\alpha$  by 37-60%.  $\text{Na}_2\text{CO}_3$  also increased  $\alpha$ ; the suggested addn. is 2-3%.  $\text{Na}_2\text{CO}_3$  also increased the density of the carbonate-free clays if fired at 900°, but in the carbonate-bearing clays at 1000°.  $\alpha$  of the natural minerals such as limestone, dolomite, or magnesite was very high ( $23-33 \times 10^{-6}$ ) but rapidly decreased on successive firings, and stabilized at approach to the dissociation temp. It is proposed that this effect explain local glaze failures on the once-fired articles. Viterite, limestone, or dolomite on a percentage basis, were equally efficient in increasing  $\alpha$ . Addn. of quartz sand increased  $\alpha$  at firing below 900°, but above 900°, max.  $\alpha$  was obtained at 5-10% sand. Increases in  $\alpha$  resulted also from addn. of  $\text{Ca}(\text{OH})_2$ ,  $\text{BaCO}_3$ , and apatite. The following addns. are suggested for best results in increasing  $\alpha$ : limestone or dolomite, 10-30%; or  $\text{Na}_2\text{CO}_3$ , 1-2%; or quartz sand 5-10%; or not more than 2%  $\text{Ca}(\text{OH})_2$ . A. D.

137-58-6-13020

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 6, p 263 (USSR)

AUTHORS ~~Eyduk, Yu. Ya.~~, Maksimova, O.S., Pauksh, P.G.

TITLE: Titanium Enamels on Cast Iron (Titanovyye emali po chugunu)

PERIODICAL: Uch. zap. Latv. un-t, 1956, Vol 9, pp 169-176

ABSTRACT. The purpose of the study was to obtain white enamel for cast iron pigmented with  $\text{TiO}_2$  at a firing temperature  $< 800^\circ\text{C}$ . Founding of frits was done at a temperature of  $1150-1250^\circ\text{C}$ , grinding was done in ceramic mills until the  $+4900$  mesh/cm<sup>2</sup> screen residue was 5-10%. The surface of the cast iron was cleaned with wire brushes and emery or by sandblasting (metal-shot blasting). The zone of optimal firing was determined visually after calcination of cast-iron plates with enamel applied during 15 min in a gradient kiln with a variation in temperature from  $500$  to  $1000^\circ$ . The samples were tested for the degree of whiteness, chemical stability, coefficient of heat expansion, and thermal stability. The contents of the charge and the enamel frits are quoted. High-grade coatings are obtained from R-3 frit containing (in %):  $\text{SiO}_2$  48.5,  $\text{Na}_2\text{O}$  10.7,  $\text{B}_2\text{O}_3$  7.7,  $\text{TiO}_2$  17.3, and  $\text{Na}_2\text{AlF}_6$  11.9. During the grinding 1%

Card 1/2

Titanium Enamels on Cast Iron

137-58-6-13020

(of frit weight) of  $\text{NaNO}_2$  and 1.5% of bentonite should be added to this frit in order to prevent formation of wavy wrinkles in the enamel. The following frit of group VII proved to be the best of the boron-free frits studied:  $\text{SiO}_2$  61.34,  $\text{Na}_2\text{O}$  18.89,  $\text{K}_2\text{O}$  1.15,  $\text{MgO}$  0.52,  $\text{CaO}$  3.80,  $\text{Al}_2\text{O}_3$  5.19,  $\text{TiO}_2$  4.29, and  $\text{CaF}_2$  4.82. During its grinding 12-15% (of weight of frit) of  $\text{TiO}_2$  and 1.5% of bentonite are added in order to obtain a good opaqueness of the enamel. These enamels meet the technical standards relative to thermal stability and mechanical properties and greatly surpass the factory enamel in whiteness and chemical stability. Enamels of various bright colors were obtained on the base of low-melting boron-free frit.

Ts.G.

1. Cast iron--Coatings
2. Enamel coatings--Applications
3. Titanium--Applications

Card 2/2

Elektron, Vakuüm.

**Fig. 1. Dependence**

**FILE : BOX 171017A.7C**

2017-2286

Debye's eqn., 5-16. *Thiobisobutyl formaldehyde*, 4 (*Scientific Notes*, Vol. 16, Chemistry Faculty, 4) *ibid.*, 1957. 251 p. 350 copies printed.

206. (This page): A.I. Iyerin'ski, Professor, Doctor of Chemistry L.E. Lapid', Member of the Academy of Sciences Latvian SSR, Professor, Doctor of Chemistry; G.N. Vozna, Professor, Doctor of Chemistry; Tech. Ed.: A. Peterson

**FRONTIER:** This book is intended for laypeople, chemists and scientists in the ceramic industries.

and the physicochemical properties and compositions of ceramic and refractory materials. In particular, figures, tables, and references accompany the articles.

Talbot, L. J., and E. C. Cornhill. The Use of Sodium  
Thiosulfate in Quantitative Analysis

2. Abstracts by Al. Vells, and T. Aiznis. The Lumbermen of  
Alumina Oxide by Al. Vells

29. **QUESTION:** Assistance of the Boundary Layer, Reverse Potential, and the Corrosion of Aluminum in Aqueous Sulfate Solutions

2. Abstract. Lists as a reagent for qualitative determination of Aromatic Nitro Compounds

Young, G. G. J. and A. L. Math. In the intersection of 2,5-dimethyl-2-pyrrol-1-yl-undecylone with primary amines

49

63 U. Villere. Study of Oxalate Acid and Its

79

Wils Becker and Yeld before cooking cellulose in the  
[77-4949] Wilder and Yeld before cooking cellulose in the  
suppose process

Black, J. Properties of Typical Clays of the Latvian SSR  
Publ. No. 70. Summaries of Scientific Papers  
1973

**Practical Aspects of the Use of Microphosphorylation for the Production of Radioactive Substances** 123

.....	138
.....	161

Translating to A.A. and T.T. Fifth. Properties of Some Groups.  
Key Making, Key-Load and Son-nority classes for Structural Ceramics  
167

*Prepared by D. E. Day, and T. E. Schmitt: The Possibility of Using  
Inorganic Open-Heart Drugs for the Production of Binding Substances*

~~170~~ 170  
~~171~~ 171  
~~172~~ 172  
~~173~~ 173  
~~174~~ 174  
~~175~~ 175  
~~176~~ 176  
~~177~~ 177  
~~178~~ 178  
~~179~~ 179  
~~180~~ 180  
~~181~~ 181  
~~182~~ 182  
~~183~~ 183  
~~184~~ 184  
~~185~~ 185  
~~186~~ 186  
~~187~~ 187  
~~188~~ 188  
~~189~~ 189  
~~190~~ 190  
~~191~~ 191  
~~192~~ 192  
~~193~~ 193  
~~194~~ 194  
~~195~~ 195  
~~196~~ 196  
~~197~~ 197  
~~198~~ 198  
~~199~~ 199  
~~200~~ 200  
~~201~~ 201  
~~202~~ 202  
~~203~~ 203  
~~204~~ 204  
~~205~~ 205  
~~206~~ 206  
~~207~~ 207  
~~208~~ 208  
~~209~~ 209  
~~210~~ 210  
~~211~~ 211  
~~212~~ 212  
~~213~~ 213  
~~214~~ 214  
~~215~~ 215  
~~216~~ 216  
~~217~~ 217  
~~218~~ 218  
~~219~~ 219  
~~220~~ 220  
~~221~~ 221  
~~222~~ 222  
~~223~~ 223  
~~224~~ 224  
~~225~~ 225  
~~226~~ 226  
~~227~~ 227  
~~228~~ 228  
~~229~~ 229  
~~230~~ 230  
~~231~~ 231  
~~232~~ 232  
~~233~~ 233  
~~234~~ 234  
~~235~~ 235  
~~236~~ 236  
~~237~~ 237  
~~238~~ 238  
~~239~~ 239  
~~240~~ 240  
~~241~~ 241  
~~242~~ 242  
~~243~~ 243  
~~244~~ 244  
~~245~~ 245  
~~246~~ 246  
~~247~~ 247  
~~248~~ 248  
~~249~~ 249  
~~250~~ 250  
~~251~~ 251  
~~252~~ 252  
~~253~~ 253  
~~254~~ 254  
~~255~~ 255  
~~256~~ 256  
~~257~~ 257  
~~258~~ 258  
~~259~~ 259  
~~260~~ 260  
~~261~~ 261  
~~262~~ 262  
~~263~~ 263  
~~264~~ 264  
~~265~~ 265  
~~266~~ 266  
~~267~~ 267  
~~268~~ 268  
~~269~~ 269  
~~270~~ 270  
~~271~~ 271  
~~272~~ 272  
~~273~~ 273  
~~274~~ 274  
~~275~~ 275  
~~276~~ 276  
~~277~~ 277  
~~278~~ 278  
~~279~~ 279  
~~280~~ 280  
~~281~~ 281  
~~282~~ 282  
~~283~~ 283  
~~284~~ 284  
~~285~~ 285  
~~286~~ 286  
~~287~~ 287  
~~288~~ 288  
~~289~~ 289  
~~290~~ 290  
~~291~~ 291  
~~292~~ 292  
~~293~~ 293  
~~294~~ 294  
~~295~~ 295  
~~296~~ 296  
~~297~~ 297  
~~298~~ 298  
~~299~~ 299  
~~300~~ 300  
~~301~~ 301  
~~302~~ 302  
~~303~~ 303  
~~304~~ 304  
~~305~~ 305  
~~306~~ 306  
~~307~~ 307  
~~308~~ 308  
~~309~~ 309  
~~310~~ 310  
~~311~~ 311  
~~312~~ 312  
~~313~~ 313  
~~314~~ 314  
~~315~~ 315  
~~316~~ 316  
~~317~~ 317  
~~318~~ 318  
~~319~~ 319  
~~320~~ 320  
~~321~~ 321  
~~322~~ 322  
~~323~~ 323  
~~324~~ 324  
~~325~~ 325  
~~326~~ 326  
~~327~~ 327  
~~328~~ 328  
~~329~~ 329  
~~330~~ 330  
~~331~~ 331  
~~332~~ 332  
~~333~~ 333  
~~334~~ 334  
~~335~~ 335  
~~336~~ 336  
~~337~~ 337  
~~338~~ 338  
~~339~~ 339  
~~340~~ 340  
~~341~~ 341  
~~342~~ 342  
~~343~~ 343  
~~344~~ 344  
~~345~~ 345  
~~346~~ 346  
~~347~~ 347  
~~348~~ 348  
~~349~~ 349  
~~350~~ 350  
~~351~~ 351  
~~352~~ 352  
~~353~~ 353  
~~354~~ 354  
~~355~~ 355  
~~356~~ 356  
~~357~~ 357  
~~358~~ 358  
~~359~~ 359  
~~360~~ 360  
~~361~~ 361  
~~362~~ 362  
~~363~~ 363  
~~364~~ 364  
~~365~~ 365  
~~366~~ 366  
~~367~~ 367  
~~368~~ 368  
~~369~~ 369  
~~370~~ 370  
~~371~~ 371  
~~372~~ 372  
~~373~~ 373  
~~374~~ 374  
~~375~~ 375  
~~376~~ 376  
~~377~~ 377  
~~378~~ 378  
~~379~~ 379  
~~380~~ 380  
~~381~~ 381  
~~382~~ 382  
~~383~~ 383  
~~384~~ 384  
~~385~~ 385  
~~386~~ 386  
~~387~~ 387  
~~388~~ 388  
~~389~~ 389  
~~390~~ 390  
~~391~~ 391  
~~392~~ 392  
~~393~~ 393  
~~394~~ 394  
~~395~~ 395  
~~396~~ 396  
~~397~~ 397  
~~398~~ 398  
~~399~~ 399  
~~400~~ 400  
~~401~~ 401  
~~402~~ 402  
~~403~~ 403  
~~404~~ 404  
~~405~~ 405  
~~406~~ 406  
~~407~~ 407  
~~408~~ 408  
~~409~~ 409  
~~410~~ 410  
~~411~~ 411  
~~412~~ 412  
~~413~~ 413  
~~414~~ 414  
~~415~~ 415  
~~416~~ 416  
~~417~~ 417  
~~418~~ 418  
~~419~~ 419  
~~420~~ 420  
~~421~~ 421  
~~422~~ 422  
~~423~~ 423  
~~424~~ 424  
~~425~~ 425  
~~426~~ 426  
~~427~~ 427  
~~428~~ 428  
~~429~~ 429  
~~430~~ 430  
~~431~~ 431  
~~432~~ 432  
~~433~~ 433  
~~434~~ 434  
~~435~~ 435  
~~436~~ 436  
~~437~~ 437  
~~438~~ 438  
~~439~~ 439  
~~440~~ 440  
~~441~~ 441  
~~442~~ 442  
~~443~~ 443  
~~444~~ 444  
~~445~~ 445  
~~446~~ 446  
~~447~~ 447  
~~448~~ 448  
~~449~~ 449  
~~450~~ 450  
~~451~~ 451  
~~452~~ 452  
~~453~~ 453  
~~454~~ 454  
~~455~~ 455  
~~456~~ 456  
~~457~~ 457  
~~458~~ 458  
~~459~~ 459  
~~460~~ 460  
~~461~~ 461  
~~462</~~

194

Reviews, a. b. Zh. and *Abstracts. Physicochemical Properties of Compositions of the System CaO-PbO-SiO<sub>2</sub>* 201

211  
The Role of Magnesium Oxide in the Pro-  
duction of Salivary Bile from Dolomitic Lime

Journal of Polymer Science: Part A: Polymer Chemistry  
Volume 32, 221-231 (1994)  
© 1994 John Wiley & Sons, Inc.  
0887-624X/94/020221-11\$04.00  
DOI 10.1002/pola.1090320111

J. N. MATHESON, L. A. SIKORA. The Physicochemical Properties  
of Very Viscous Valence Glasses

NAME	ADDRESS	CITY	STATE	ZIP	DATE	TIME	BY	REMARKS
Mr. J. H. Smith	123 Main St.	Springfield	MA	01103	10/15/77	10:30	J. H. Smith	Arrived on time, presentation on local history.
Ms. A. B. Jones	456 Oak Ave.	Springfield	MA	01103	10/15/77	11:00	A. B. Jones	Arrived on time, presentation on local history.
Mr. C. D. Brown	789 Elm St.	Springfield	MA	01103	10/15/77	11:30	C. D. Brown	Arrived on time, presentation on local history.
Ms. E. F. Green	101 Maple Dr.	Springfield	MA	01103	10/15/77	12:00	E. F. Green	Arrived on time, presentation on local history.
Mr. G. H. White	202 Pine St.	Springfield	MA	01103	10/15/77	12:30	G. H. White	Arrived on time, presentation on local history.
Ms. I. J. Black	303 Cedar Ave.	Springfield	MA	01103	10/15/77	13:00	I. J. Black	Arrived on time, presentation on local history.
Mr. K. L. Gray	404 Birch St.	Springfield	MA	01103	10/15/77	13:30	K. L. Gray	Arrived on time, presentation on local history.
Ms. M. N. Blue	505 Walnut Dr.	Springfield	MA	01103	10/15/77	14:00	M. N. Blue	Arrived on time, presentation on local history.
Mr. O. P. Red	606 Cherry St.	Springfield	MA	01103	10/15/77	14:30	O. P. Red	Arrived on time, presentation on local history.
Ms. Q. R. Yellow	707 Peach Ave.	Springfield	MA	01103	10/15/77	15:00	Q. R. Yellow	Arrived on time, presentation on local history.
Mr. S. T. Purple	808 Apple St.	Springfield	MA	01103	10/15/77	15:30	S. T. Purple	Arrived on time, presentation on local history.
Ms. U. V. Pink	909 Orange Dr.	Springfield	MA	01103	10/15/77	16:00	U. V. Pink	Arrived on time, presentation on local history.
Mr. W. X. Brown	1010 Lemon St.	Springfield	MA	01103	10/15/77	16:30	W. X. Brown	Arrived on time, presentation on local history.
Ms. Y. Z. Green	1111 Lime Ave.	Springfield	MA	01103	10/15/77	17:00	Y. Z. Green	Arrived on time, presentation on local history.
Mr. A. B. White	1212 Coffee St.	Springfield	MA	01103	10/15/77	17:30	A. B. White	Arrived on time, presentation on local history.
Ms. C. D. Black	1313 Tea Dr.	Springfield	MA	01103	10/15/77	18:00	C. D. Black	Arrived on time, presentation on local history.
Mr. E. F. Gray	1414 Spice St.	Springfield	MA	01103	10/15/77	18:30	E. F. Gray	Arrived on time, presentation on local history.
Ms. G. H. Blue	1515 Herb Ave.	Springfield	MA	01103	10/15/77	19:00	G. H. Blue	Arrived on time, presentation on local history.
Mr. I. J. Red	1616 Fruit St.	Springfield	MA	01103	10/15/77	19:30	I. J. Red	Arrived on time, presentation on local history.
Ms. K. L. Yellow	1717 Veg Dr.	Springfield	MA	01103	10/15/77	20:00	K. L. Yellow	Arrived on time, presentation on local history.
Mr. M. N. Purple	1818 Grain St.	Springfield	MA	01103	10/15/77	20:30	M. N. Purple	Arrived on time, presentation on local history.
Ms. O. P. Pink	1919 Legume Ave.	Springfield	MA	01103	10/15/77	21:00	O. P. Pink	Arrived on time, presentation on local history.
Mr. Q. R. Brown	2020 Seed St.	Springfield	MA	01103	10/15/77	21:30	Q. R. Brown	Arrived on time, presentation on local history.
Ms. S. T. Green	2121 Plant Dr.	Springfield	MA	01103	10/15/77	22:00	S. T. Green	Arrived on time, presentation on local history.
Mr. U. V. White	2222 Flower St.	Springfield	MA	01103	10/15/77	22:30	U. V. White	Arrived on time, presentation on local history.
Ms. W. X. Black	2323 Tree Ave.	Springfield	MA	01103	10/15/77	23:00	W. X. Black	Arrived on time, presentation on local history.
Mr. Y. Z. Gray	2424 Wood St.	Springfield	MA	01103	10/15/77	23:30	Y. Z. Gray	Arrived on time, presentation on local history.
Ms. A. B. Blue	2525 Stone Dr.	Springfield	MA	01103	10/15/77	24:00	A. B. Blue	Arrived on time, presentation on local history.
Mr. C. D. Red	2626 Brick St.	Springfield	MA	01103	10/15/77	24:30	C. D. Red	Arrived on time, presentation on local history.
Ms. E. F. Yellow	2727 Cement Ave.	Springfield	MA	01103	10/15/77	25:00	E. F. Yellow	Arrived on time, presentation on local history.
Mr. G. H. Purple	2828 Glass St.	Springfield	MA	01103	10/15/77	25:30	G. H. Purple	Arrived on time, presentation on local history.
Ms. I. J. Pink	2929 Paper Dr.	Springfield	MA	01103	10/15/77	26:00	I. J. Pink	Arrived on time, presentation on local history.
Mr. K. L. Brown	3030 Metal St.	Springfield	MA	01103	10/15/77	26:30	K. L. Brown	Arrived on time, presentation on local history.
Ms. M. N. Green	3131 Rubber Ave.	Springfield	MA	01103	10/15/77	27:00	M. N. Green	Arrived on time, presentation on local history.
Mr. O. P. White	3232 Plastic St.	Springfield	MA	01103	10/15/77	27:30	O. P. White	Arrived on time, presentation on local history.
Ms. Q. R. Black	3333 Textile Dr.	Springfield	MA	01103	10/15/77	28:00	Q. R. Black	Arrived on time, presentation on local history.
Mr. S. T. Gray	3434 Leather St.	Springfield	MA	01103	10/15/77	28:30	S. T. Gray	Arrived on time, presentation on local history.
Ms. U. V. Blue</								

EYDUK, Yu. YA.

LATVIA / Chemical Technology. Ceramics, glass,  
cement, materials, concrete.

H

Abs Jour: Ref Zhur-Khimiya, No 12, 1958, 40461.

Author : Eyduk, Yu. Ya.

Inst : Latvian University.

Title : Properties of Low-Baking Gypsum.

Orig Pub: Zinatn. Raksti. Latv. Univ., 1957, 14, 123-154.

Abstract: A relationship between gypsum properties (G) and grinding fineness, heating temperature and others, as well as the nature of the dihydrate structure and granulation of the baked G was established. The presence of medium and fine particles with a low content of particles of less than 0.005 mm of G is being specified as the optimum condition. The beginning of the hardening time is greater than 10 minutes, the temperature interval from

Card 1/4

10

LATVIA / Chemical Technology. Ceramics, glass,  
cement, materials, concrete.

H

Abs Jour: Ref Zhur-Khimiya, No 12, 1958, 40461.

Abstract: All modifications of the low-baked G are rapidly hydrated to SH; the further hydration process proceeds unequally, depending on the baking temperature. The strength of pure gypsum at the same  $w/c$  is approximately the same. In the rapid dehydration of G at temperatures higher than 300°C (for instance, baking in a suspended state), a soluble A is formed on the surface of the particles, which provides a fast settling of G. Baked G contains  $\beta$ -SH,  $\beta$ -dehydrated SH, a soluble A, dihydrate, and insoluble A. The minimum amount of dihydrate and insoluble A is present in digested gypsum. G obtains the least normal density by baking it in rotating kilns, and the most, by baking it in a suspended state (Leshe's mill).

Card 3/4

11



SOV/137-58-7-15479

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 7, p 222 (USSR)

AUTHORS: Eyduk, Yu.Ya., Pauksh, P.G., Maksimova, O.S.

TITLE: Influence of Some Technological Factors on the Properties of Covering Enamels on Cast Iron (Vliyaniye nekotorykh tekhnologicheskikh faktorov na svoystva pokrovnykh emaley po chugunu)

PERIODICAL: Zinatn. raksti. Latv. Univ., Uch. zap. Latv. un-t, 1957, Vol 14, pp 221-224

ABSTRACT: On introduction of a small amount of  $\text{TiO}_2$  (4.5%) as a separate component or as a titanium flux ( $\text{Na}_2\text{O}$ ,  $\text{SiO}_2$ ,  $\text{TiO}_2$ ) the properties of the enamels investigated did not change from the method of introduction. Introduction of  $\text{TiO}_2$  as a separate component simplifies the technique of preparation of frits. Upon substitution of 1%  $\text{B}_2\text{O}_3$  in the composition of the enamel for 1%  $\text{SiO}_2$  the wetting capacity of the enamels is increased considerably and the firing temperature is somewhat lowered. The best milling additive for the Ti enamels investigated is 1-2% of bentonite which has considerably greater binding ability than the

Card 1/2

SOV/137-58-7-15479

Influence of Some Technological Factors (cont.)

usual plastic clays. Too fine a milling of frits contributes to the appearance of the defect known as "korezhina" ("writhing"). The best results were produced when the slip contained 5-12% of 0.05-0.01 mm diam particles. When the slip contains more of such particles the quality of the surface on firing is impaired.

R. A.

1. Enamel coatings--Binders
2. Titanium oxides--Applications
3. Cast iron--Coatings

Card 2/2

Eiduks, J.

4

Physicochemical properties of leadless and boronless pottery glasses containing oxides of barium, zinc, and strontium. A. Ubite, A. Velvada, and J. Eiduks. *Lavijas PSR Zinatju Akad. Vests*, 1958, No. 4, 113-22. The lower linear thermal coeff. of expansion of glasses were obtained upon the following ratio of oxides: ZnO:BaO 3:1, ZnO:SrO 1:1, and BaO:SrO:ZnO 1:1:3. The higher temps. of softening of frits were established at the following mol. ratio of oxides: ZnO:BaO 3:1 and ZnO:SrO 1:1. Chem. stability of glasses increases with the increase of ZnO content. During the fritting the formation of two products of liquation was established, one of which contained a large amt. of P compds. and is present in the melt in the form of separate layer or finely dispersed drops. The presence of ZnO aids in the stabilization of emulsion structure. The optimal luster of glasses at the low temp. of deposition was attained at the high content of ZnO in them. Glasses which are deposited at 980-1000° have a good luster and good chem. stability. T. Cheron.

ff

EIDUKS, J. V. Ya.

GENERAL

PERIODICALS: VESTIS, No. 5, 1958

EIDUKS, J. Mineralogical properties of nonlead and nonboron pottery glazes containing BaO, ZnO, and SrO. p. 113.

Monthly list of East European Accessions (E AI) LC, Vol. 8, No. 2,  
February 1959, Uncl<sub>ss</sub>.

EIDUKS, J., AND OTHERS.

GENERAL

PERIODICALS: VESTIS, NO. 8, 1958

EIDUKS, J., AND OTHERS. Clays of the Latvian Jurassicsystem. In  
Russian. p. 111.

Monthly list of East European Accessions (EEAI) LC, VOL.8, No.2  
February 1959, Unclass.

SOV/136-59-5-17/21

AUTHORS: Savin, A.V., and Eyduk, Yu.A.

TITLE: Low-Temperature Sintering of Molybdenum  
(Nizkotemperaturnoye spekaniye molibdena)

PERIODICAL: Tsvetnyye metally, 1959, Nr 5, pp 81-84 (USSR)

ABSTRACT: The possibility of obtaining Mo by sintering at 1400 - 1700 °C was investigated. Mo powder reduced at various temperatures (Fig 1), and a hydrogen atmosphere with varying moisture contents were used. The powder was pressed into slabs 12X12X500 mm and heated. The specific weight before and after sintering was found. The compacting pressures used were 4 and 10 T/cm<sup>2</sup> for fine and coarse powder, giving specific weights of 5.5-6 and 9 g/cm<sup>3</sup> respectively. The results of sintering were estimated by the compacting coefficient, (K) i.e. the ratio of the volume of a pore after sintering to the original volume. Table 1 shows the least values of K or the best sintering properties are obtained using Mo powder reduced at 870 °C. With increase in reducing temperature K increases. The effect of moisture content is seen in the first hour of sintering and is less at 1600-1700 °C than at 1400-1500 °C (Figs 1 and 2).

Card 1/3

SOV/136-59-5-17/21

Low-Temperature Sintering of Molybdenum

The rate of oxidation in the first hour can be retarded by addition of 0.1% C to the Mo powder. Above 1500 °C the beneficial effect of the C falls off presumably because the oxidation ability of water vapour also decreases. Table 2 shows the gas content of Mo produced by low temperature sintering is the same as that in Mo produced by conventional methods. The finest grained structure is obtained from fine powder sintered at 1400-1500 °C and is 5-10  $\mu$ . At 1600-1700 °C it is 15-20  $\mu$ . Moisture has no effect on the grain size in 1-3 hours. Metallographic examination showed that the coarser the powder the slower the recrystallization. Table 3 shows the results of mechanical tests on 2, 0.9 and 0.5 mm Mo wire produced from the low temperature sintered slabs. Fig 3 shows the change in mechanical properties of 0.5 mm diameter wire after tempering for 3 hours at various temperatures. The wire made from

Card 2/3

SOV/136-59-5-17/21

Low-Temperature Sintering of Molybdenum

coarse-grained powder has the highest mechanical properties.

There are 3 figures, 3 tables and 8 references, of which 3 are English, 1 is German and 4 are Soviet.

Card 3/3



15(2)

AUTHORS:

Zebergs, E., Eiduks, J., Reinis, V.

SOV/156-59-1-46/54

TITLE:

Some Methods of Petrographic Research in Application to the Investigation of Glazes (Nekoteryye metody petrograficheskogo issledovaniya v primenenii k izucheniyu glazuroy)

PERIODICAL:

Nauchnyye doklady vysshey shkoly. Khimiya i khimicheskaya tekhnologiya, 1959, Nr 1, pp 177 - 180 (USSR)

ABSTRACT:

For the investigation of the interaction between glaze and body polishes were made vertically to the surface of the glaze and investigated in a polarization microscope with a lateral screening of the field of vision. By this method details and flaws that are not noticeable in ordinary light are clearly revealed (Figure). The refraction indices found by means of the immersion method (Table) also numerically proved these flaws. In flawless glazes with a constant course of the refraction index the intensity of the interaction (of the metamorphic layer) between glaze and body cannot be detected. In this case, flat slabs are sawed from the body vertically to the glaze. One side of the slab is polished and put into a 1% solution of rhodamine B for 24 hours. After washing and

Card 1/2

Some Methods of Petrographic Research in Application  
to the Investigation of Glazes

SOV/106-99-1-46/54

drying, such polished sections, under a binocular microscope, clearly show different color zones which can easily be measured micrometrically. Some glazes on faience bodies do not reveal any zones even after an application of this method. In this case, the body is covered with only a thin strip of glaze, polished after firing, and superficially stained with rhodamine B. Under the microscope the glaze intrusion into the body can be seen and measured. The microscopic photographs obtained by means of the procedures specified are given. There are 4 figures, 1 table, and 6 references, 4 of which are Soviet.

ASSOCIATION: Kafedra tekhnologii silikatov Latviyskogo gosudarstvennogo universiteta im. Petra Stuchki (Chair of the Technology of Silicates of Latvian State University imeni P. tr Stuchka)

SUBMITTED: June 16, 1958

Card 2/2

EYDUK, Yu.Ya. [Eiduks, J.]; VAYVAD, A.Ya. [Vaivads, A.]; FREYDENFEL'D,  
E.Zh. [Freidenfeld, E.]

Physicochemical properties of  $\alpha$ - and  $\beta$ - calcium sulfate semi-  
hydrates. Izv.vys.ucheb.zav.; khim.i khim.tekh. 2 no.6:920-925  
'59. (MIRA 13:4)

1. Rishskiy politekhnicheskii institut. Kafedra neorganicheskoy  
khimicheskoy tekhnologii.  
(Calcium sulfate)

EDUKS, J.

13  
Wetting of ceramics by glazes in the presence of active agents. I. Blauks and O. Kukurs. *Latvijas PSR Zinātnu Akad. Vēstis* 1959, No. 8, 83-90.—A pressed cylinder of the glaze contg. the additive was placed on the ceramic surface, heated to the desired temp., and quenched. The contact angle of the drop with the surface was taken as the measure of wetting. Considerable decrease of the angle was observed with NaOH, borax, and  $H_2SiF_6$  from the wet additives, and with  $NH_4VO_3$ ,  $MO_3$  and  $NH_4NO_3$  from the dry additives. A. Bechtel

3 4E2c(4)  
1-80(133)  
4E2b(V)

VAIVADS, A. (Riga); KUKURS, O. (Riga); EIDUKS, J. (Riga)

Thermography of easily fusible glaze. Vestis Latv ak no.9:107-118  
'59. (EEAI 9:10)

1. Latvijas PSR Zinatnu akademijs, Kimijas institutuss.  
(Glazes)

PAUKSS, P. (Riga); EIDUKS, J. (Riga); BIDERMANIS, L. (Riga)

Study of possibilities of enameling chill-cast iron. Vestis Latv ak  
no.11:91-101 '59. (EEAI 9:11)

1. Latvijas PSR Zinatnu akademijs, Kimijas instituts.  
(Enamel and enameling) (Cast iron)

PAUKSH, P.[Pauks,P.](Riga); EYDUK, Yu.[Eduks,J.](Riga); KAMINSKIS, Ya.  
[Kaminskis,J.](Riga)

Effect of the preparation method on the properties of fretted  
base glaze of type borax, sand. In Russian. Vestis Latv ak no.3:  
119-124 '60. (KEAI 10:7)

1. Akademiya nauk Latvyskoy SSR, Institut khimiyi.  
(Borax) (Glazes) (Sand)

EYDUK, Ya. [Eiduks, J.](Riga); IEVIN'SH, A. [Ievins, A.](Riga); OZOLS, Ya.  
[Ozols, J.](Riga)

Chemical and rational analyses of some typical Latvian SSR clays  
and their fractions. In Russian. Vestis Latv ak no.5:97-104  
'60. (EEAI 10:7)

1. Akademiya nauk Latviyskoy SSR, Institut khimii.  
(Latvia—Clay)



S/730/60/000/002/001/000

AUTHORS: Savin, A. V., Eyduk, Yu. A.

TITLE: The making of a Co W sintered alloy for tool manufacture.

SOURCE: Vsesoyuznyy nauchno-issledovatel'skiy institut tverdykh splavov.  
Sbornik trudov. no.2. Moscow, 1960. Tverdyye splavy. pp.15-23

TEXT: Fundamental parameters that facilitate the making of a compact single-phase alloy with a low gas content are discussed. A suitably heat-treated Co W alloy exhibits outstanding strength and wear- and corrosion-resistance characteristics which render it eminently suitable for use in the shafts of vibratory resistant tools (or instruments) in lieu of steel. W. P. Sykes' phase diagram (Proc. Soc. Steel Treating, Trans., v.21, 1933, 5 //Abstracter's note: See also ibid., p.385//) shows that at the eutectic temperature Co dissolves about 35% W. In an alloy with 25% W, a single-phase  $\beta$  solid solution exists only above 1075°C, whereas below 1075° the alloy consists of two phases,  $\beta$  and  $\epsilon$ . Precipitation of the  $\epsilon$  phase in the supersaturated solid solution leads to dispersive hardening of the alloy at  $T > 500^\circ$ . St. Stolarz (Metal and Production of Cobalt-Tungsten Alloy, v. IX-X, no. 1, 1953, 298-302 //sic!//) describes a sintering method for the preparation of a 75% (by weight) Co and 25% W alloy, details of which are summarized. The author:

Card 1/4

The making of a Co-W sintered alloy ..

S/736/60/000/002/001

used ammonium paratungstate (APW) produced by the "Pobeda" factory, and tungsten anhydride (WA) of the hard-alloy plant of the "Vardlovsk" Council of the National Economy. The APW was calcinated to WA at 500°C in a muffle furnace. WA was reduced to W in a H stream in a two-stage tubular furnace 51 mm  $\times$  1500 mm long. 50-g batches of WA were treated in 10 $\times$ 200-mm reaction boats in Stage I the boat advanced at 13.3 mm/min, at 650°, in an 800-1000 l/hr H stream, and in Stage II at 10.0 mm/min, at 800°, in a like H stream. The resulting W powder was sifted through a No. 0.112-0.1 (130-150-mesh) sifter and stored in a tightly stoppered glass container. It contained 0.3-0.6 mg/g adsorbed methanol, 0.2-0.3% O; its dry uncompressed weight was 0.9-1.1 g/cm<sup>3</sup>. The W was reduced to metallic Co in the same furnace in 120-g batches carried in 200-mm iron boats, advancing at 13.3 mm/min at a temperature of 580° and in an 800 l/hr H stream. The resulting Co powder was sifted through a No. 0.112-0.1 sifter and stored. It contained 0.2-0.5% O, 0.4-0.5 mg/g adsorbed methanol. Its dry, uncompressed weight: 0.6-0.7 g/cm<sup>3</sup>. A 15/25 (by weight) Co/W-powder charge was mixed in a 5-liter 180-mm dia porcelain ball mill with 25-mm balls; ball weight totaled 1/2 charge weight. However ball weight would not produce hardened shiny Co flakes. The mixture was pressed into 10 $\times$ 10-mm rods in a dismantlable steel die at a 3 ton/cm<sup>2</sup> pressure. The rods were sintered in two stages in an alum furnace with Mo. Sintering temperature and atmosphere

Card 2/4

The melting of a Co-W sintered alloy...

1000°C

time were varied; the H<sub>2</sub> atmosphere and a humidity of 10-15 mm and was unspecified and a dew-point temperature of 2-5°C. The alloy attained a compact metallic appearance and a fine-grained structure of phase β solid solution structure. Under these conditions, the porosity was negligible (spec. grav. 5.42 g/cm<sup>3</sup> at 1100°C the spec. grav. at 1000°C 7.80, at 1100°C 8.59). The effects of various sintering procedures on the structure and density of the resulting β phase are tabulated. Following primary sintering at 800°C the ultimately sintered alloy was free of inclusions. After a second sintering, specimens initially sintered at 1100°C contained, as a rule, extraneous inclusions of the composition of the alloy and none. In samples sintered directly at 1100-1150°C without pre-sintering, the structure was completely homogeneous, but their porosity (0.2-1.0%) was higher than in sintered specimens (0.2-1.0%). For times of pre-sintering 1-2 hours, the structure did not affect the homogeneity or density of the alloy upon sintering. The gas content of the ultimate alloy was determined by a low vacuum method of the component gases (usually 0.1-0.5% by weight), which was 0.1-0.2% H<sub>2</sub> atmosphere, and a long holding time during secondary sintering. The temperature did not produce a significant degree of effect, but the specimen at 1100°C had a gas content of 0.20% or more, but concentration of 0.1% at 1100°C. The W power should not exceed 0.1-0.2 W/g for the alloy (0.5%).

Card 3, 4



EYDUK, Yu. [Eiduk, J.] (Riga); PAUKSH, P. [Pauks, P.] (Riga)

Effect of the fineness of admixture grinding on the properties  
of fritted prime coat enamels. In Russian. Vestis Latv ak no.5:  
105-108 '60. (EEAI 10:7)

1. Akademiya nauk Latvyskoy SSR, Institut khimii.  
(Enamel and enameling)

EIDUKS, Julijs; KALINS, Martins; MACEJEVSKA, E., red.; AIZUPIETE, M.,  
tekh. red.

[Minerals of the Latvian S.S.R. and their use] Latvijas PSR  
derigie izrakteni un to izmantosana. Riga, Latvijas Valsts  
izdevnieciba, 1961. 430 p. (MIRA 15:3)  
(Latvia—Mines and mineral resources)

EYDUK, Yu.Ya.

Rapid methods for the quality control of glazes and glaze coatings.  
Stek. i ker. 19 no.3:32-35 Mr '62. (MIRA 15:3)  
(Glazes) (Ceramics--Quality control)

18.1247

1454

28879  
S/180/61/000/004/017/020  
E073/E535

AUTHORS: Baskin, M.L., Savin, A.V., Tumanov, V.I. and Eyduk, Yu.A. (Moscow)

TITLE: Mutual solubility of copper and molybdenum and certain properties of molybdenum-copper alloys

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye tekhnicheskikh nauk, Metallurgiya i toplivo, 1961, No.4, pp.111-114

TEXT: Mo-Cu alloys are extensively used for electric contacts. The authors prepared alloys containing 1.5 to 14% Cu by means of current powder metallurgy methods. Sintering of molybdenum was carried out at 1700°C and the alloys of molybdenum with low contents of copper (1.5 to 10% by weight) were sintered at the same temperature. At lower temperatures, either no sintering took place at all or the material was very porous. The alloy with 14% Cu sintered at 1600°C. The porosity of the produced alloys (determined metallographically) was about 0.6 volume % and that of pure Mo was about 1 volume %. The grain size of the molybdenum phase was approximately the same for all the alloys and also for pure molybdenum, i.e. mainly 25-30  $\mu$ . To obtain grains

Card 1/4



Mutual solubility of copper ...

28879  
S/180/61/000/004/017/020  
E073/E535

of this size molybdenum had to be sintered for a duration almost twice as long as that of the alloys. The properties of the starting materials, Mo and Cu, were as follows: bulk density 1.60 and 1.49 g/cm<sup>3</sup>, respectively; adsorption of methanol vapours 0.200 and 0.026 mg/g, respectively. The average grain size of the starting powders, Mo and Cu, was 1 to 2  $\mu$ . To prevent contamination with iron, the powders were mixed in molybdenum lined mills. The specimens were sintered in molybdenum boats in resistance furnaces with an open molybdenum heater in a hydrogen atmosphere for a duration of one hour and the specimens of pure molybdenum for a duration of two hours. Heat treatment was as follows: heating in a hydrogen atmosphere to 950°C, holding at that temperature for 5 hours and quenching in oil at room temperature. Data on the Mo-Cu alloys are given in Table 2, the column headings from left to right being as follows: Cu, wt.%; specific weight, g/cm<sup>3</sup>; electric resistance  $\rho \times 10^2$  Ohm mm<sup>2</sup>/m;  $\lambda \times 10^6$  1/deg; phase composition, Mo - denoting Mo-base phase, Cu - denoting copper-base phase (ToX<sub>2</sub> - ditto); lattice parameter kX; Mo-base phase, Cu-base phase. The tabulated electric

Card 2/4

Mutual solubility of copper ...

28379  
5/180/61/000/004/017/020  
E073/E535

resistance values are averages from 36 measurements, whereby the maximum error was  $\pm 2\%$  and the deviations from the average value did not exceed 0.3%. The coefficient of linear expansion was determined by means of a dilatometer with quartz rods and indicator head in the temperature range 18 to 400°C, the error being within the limits of  $\pm 2.5\%$ . To determine the influence of admixtures which are important in the industrial manufacture of Mo-Cu alloys, a series of melts were produced containing admixtures of C, Si and SiO<sub>2</sub>. Table 3 gives the obtained results for Mo-Cu alloys with 3, 5 and 8% Cu, respectively and the following admixtures in wt.-%: 0.05% C, 0.05% Si, 0.10% Si, and 0.50% SiO<sub>2</sub> ( $\rho \cdot 10^2$  Ohm mm<sup>2</sup>/m; a, kX). The influence of nickel (wt.-%) on the electric resistance ( $\rho \cdot 10^2$  Ohm mm<sup>2</sup>/m) of Mo-Cu alloys with 5% Cu was as follows: 0 - 7.10; 0.5 - 10.31; 1.0 - 12.94; 3.0 - 14.92; 5.0 - 15.29. L. G. Grigorenko, A. A. Maksimov and A. A. Cherodinov participated in the experimental work, L. Kh. Pivovarov carried out the X-ray structural analysis and M. N. Nalimova carried out the metallographic investigations. There are 3 figures, 4 tables and

Card 3/2/

Mutual solubility of copper ... 28879  
S/180/61/000/004/017/020  
E073/E535

12 references: 4 Soviet and 8 non-Soviet. The English-language references read as follows: Ref.3, C. L. Sargent, J.Amer.Chem. Soc., 1900, v.22, p.783; Ref.7, M. Hansen, Constitution of binary alloys, second edition, New York - Toronto - London, 1958; Ref.12, W. P. Sykes, R. Kent, van Horn and C. M. Tucker, Trans. AIME, 1935, v.117, p.173.

SUBMITTED: July 15, 1960

Table 3

Admixture, wt % Element, at. %	3% Cu		8% Cu		8% Cu	
	$\frac{p \times 10^4}{a-b}$	a, bX	$\frac{p \times 10^4}{a-b}$	a, bX	$\frac{p \times 10^4}{a-b}$	a, bX
—	7.74	8.1397	7.10	8.1397	7.25	8.1397
0.05% C	8.55	8.1393	7.75	—	7.65	8.1395
0.05% Si	—	—	—	—	8.58	—
0.10% Si	—	—	—	—	9.81	—
0.50% SiO <sub>2</sub>	—	—	17.00	8.1375	17.40	—

Card 4/8,

PAUKSH, P.[Pauks, P.]; EYDUK, Yu.[Eiduks, J.]

Testing cast iron used in wet-process enameling. Izv. AN Latv.  
SSR no.4:77-84 '61. (MIRA 16:1)

1. Institut khimii AN Latvyskoy SSR.

(Enamel and enameling) (Cast iron--Testing)

PAUKSH, P.[Pauks, P.] (Riga); EYDUK, Yu.[Eiduks, J.] (Riga)

Effect of granulometric composition in enamel suspensions on the  
properties of wet process ground coat enamels for cast iron. Vestis  
Latv ak no.3:77-84 '61. (EEAI 10:9)

1. Akademiya nauk Latvyskoy SSR, Institut khimii.

(Enamel and enameling)

PAUKSH, P.[Pauks, P.](Riga); EYDUK, Yu.[Eiduks, J.](Riga)

Testing of cast iron used for wet process enameling. Vestis Latv  
ak no.4:77-84 '61. (EEAI 10:9)

1. Akademiya nauk Latvyskoy SSR, Institut khimii.

(Cast iron) (Enamel and enameling)

S/081/63/000/002/045/088  
B156/B144

AUTHORS: Eyduk, Yu. Ya., Skuya, L. A.  
TITLE: Determination of the volatility of fluorine in frits and glazes  
PERIODICAL: Referativnyy zhurnal. Khimiya, no. 2, 1963, 379-380, abstract 2M111 (Uch. zap. Rzhuk. politekhn. in-t, v.6, 1962, 197-202)

TEXT: The losses of fluorine introduced in the form of NaF have been determined both while fritting glaze mixtures (19.5-31.2%) and while melting them into ceramic substances (17.9-69.2%). It is shown that the losses of F are maximum when the glaze coating is thinnest. The total losses of F when fritting and melting boron-free and lead-free glazes are 25-64%. The moment at which all the F has been distilled can be established by step-by-step titration of the separate fractions in the distillate, and determination of F by the distillation method is thus made more accurate. [Abstracter's note: Complete translation.]

Card 1/1

SVEDE-SHVETS, M.I.; EYDOK, Yu.A.; YENINA, V.A.; VODOP'YANOVA, L.S.;  
TRUSHIN, Yu.V.; Prinsipali uchastiye: DZENELADZE, Zh.O.;  
ZHUKOVA, Ye.A.; ISAKOVA, Z.S.; PUGACHEVA, V.P.; IGUMNOV, V.Ye.

Thermoelectric characteristics of sintered alloys based on  
tungsten and molybdenum. Sbor. trud. TSNNICHM no.30:7-16 '63.  
(MIRA 16:10)  
(Tungsten-molybdenum alloys--Thermoelectric properties)



EYDUK, Yu. P.; SEDMAL, Yu. N.; BEREZIN, A. Ya.

2

"Concerning the structure of alumosilicophosphate glasses."

report submitted for 4th All-Union Conf on Structure of Glass, Leningrad,  
16-21 Mar 64.

EYDUK, Yu.Ya., kand. khim. nauk; KUKUR, O.K., kand. khim. nauk

Defects occurring during the application of easily melted  
frit. Stek. i ker. 20 no.7:33-36 JI '63. (MIRA 17:2)

1. Rizhskiy politekhnicheskii institut.

L 12890-66 EWP(a)/EWT(m)/EWP(b) WH

ACC NR: AT6000485 SOURCE CODE: UR/0000/65/000/000/0156/0158

AUTHOR: Eyduk, Yu. Ya.; Sedmal, U. Ya.; Berzin', R. Ya.

ORG: None

TITLE: On the structure of aluminosilicophosphate glasses

SOURCE: Vsesoyuznoye soveshchaniye po stekloobraznomu sostoyaniyu. 4th Leningrad,  
1964. Stekloobraznoye sostoyaniye (Vitreous state); trudy soveshchaniya. Leningrad,  
Izd-vo Nauka, 1965, 156-158

TOPIC TAGS: lithium glass, aluminophosphate glass, silicate glass, glass property

ABSTRACT: The paper deals with glasses of the three systems  $Al_2O_3-SiO_2-P_2O_5$ ,  $Li_2O-Al_2O_3-SiO_2-P_2O_5$ , and  $MgO-CaO-Al_2O_3-SiO_2-P_2O_5$ . In the first system, studies of the chemical stability, crystallizing tendency, coefficient of linear thermal expansion, softening temperature, and microhardness of the glasses indicate that they consist of the groups  $[PO_4]$ ,  $[AlPO_7]$ , and  $[SiO_4]$ , weakly bonded to one another. As the  $Al_2O_3$  content increases, more  $[AlPO_7]$  groups are apparently formed in which  $P_2O_5$  is bound firmly. In the second system, it is postulated that the factor determining glass formation from the standpoint of energy considerations is the similarity between the structure of the vitreous phase and that of the crys-

Cord 1/2

L 12890-66

ACC NR: AT6000435

talline phases present in this region. Mineralogical and x-ray diffraction analyses of the crystalline compounds formed showed that crystallization during melting of the glasses involves formation of lithium phosphates and lithium aluminum phosphates. In the third system, the study of physicochemical properties of the glasses indicated that in their crystallization and dielectric properties they are not inferior to aluminum borosilicate glass used in the production of glass fiber, and they are therefore recommended for such use. The glass formation diagrams of the three systems are given. Orig. art. has: 3 figures.

SUB CODE: 07, 11/ SUBM DATE: 22May65

Card

2/2

NW

EYDUK, Yu.Ya. [Eiduks, J.]; BAUMAN, O.F. [Baumans, O.]; RUTIN', I.Ya.

Practices in the use of polymer gypsum. Stroi. mat. 11 no.6:16  
Je '65. (MIRA 18:7)

44442  
S/120/62/000/006/017/029  
E192/E382

9.6000  
9.3280

AUTHORS: Eydukas, D.Yu. and Barshauskas, K.I.

TITLE: Measuring pulse-generators for investigation of the transient characteristics of semiconductor diodes

PERIODICAL: Pribery i tekhnika eksperimenta, no. 6, 1962,  
88 - 94

TEXT: The following method of generating current (voltage) pulses was adopted: first, a voltage pulse of given duration  $\tau$  is formed and then the required current or voltage pulse is generated. This is done by using a driver pulse source to actuate a circuit for forming the rise time of the pulse; this circuit produces a pulse with a given rise time (5 - 10 ns). Simultaneously, the driver pulse is applied to a delay line and then to a circuit which forms the decay edge of the pulse; this circuit produces a signal of opposite polarity whose position corresponds to the duration of the pulse to be generated. The pulses of opposite polarities determining the leading and trailing edges of the pulse are added and a pulse of required duration is obtained. This is then applied to a forming circuit which produces an output

Card 1/2

Measuring pulse-generators'....

S/120/62/000/006/017/029  
E192/E382

current (voltage) pulse of the required amplitude and duration and  $\tau_1 = \tau_2 = 5 - 10$  ns. This method was used to design several pulse-current generators producing positive and negative pulses having an amplitude from 1 mA to 5 A and duration of 0.1 - 2  $\mu$ s. Similar voltage-pulse generators of 1-2 ohm or 20 - 30 ohm output resistance and with amplitudes of 0.1 - 5 or 1 - 200 V were designed. A double-pulse generator producing a positive current pulse, followed by a negative voltage pulse, or vice versa, and having the same performance parameters as the above generators was also built. The transition time between the top of the current pulse and the maximum amplitude of the voltage pulse in this generator was 7 - 15 ns. The generators were tested experimentally and were used to measure the rise time, storage times and pulse-resistance of a number of semiconductor diodes. The generators could be operated at frequencies up to 200 kc/s. There are 7 figures and 3 tables.

ASSOCIATION: Kaunasskiy, politekhnicheskiy institut (Kaunas Polytechnical Institute)

SUBMITTED: January 18, 1962

Card 2/2

1. 1000-07 1000-07 DJ/EE  
ACC NR: AP0055801

SOURCE CODE: UR/0413/66/000/020/0026/0026

INVENTOR: Eydukevichyus, M. Yu. P.

ORG: None

TITLE: A core for filtration of lubricating oil and diesel fuels. Class 12,  
No. 186972 [announced by the Klaipeda Department of Giprorybflot (Klaypedaskoye  
otdeleniye)]

SOURCE: Izobreteniya, promyshlennyye obraztzy, tovarnyye znaki, no. 20, 1966, 26

TOPIC TAGS: filter, filtration, paper, diesel fuel, lubricating oil

ABSTRACT: This Author's Certificate introduces a core for purification of lubricating  
oil and diesel fuel. This element is made from a paper type material in the form of  
an accordion pleated strip. The filtration capacity per unit volume of the core is in-  
creased by varying the width of the alternating pleats.

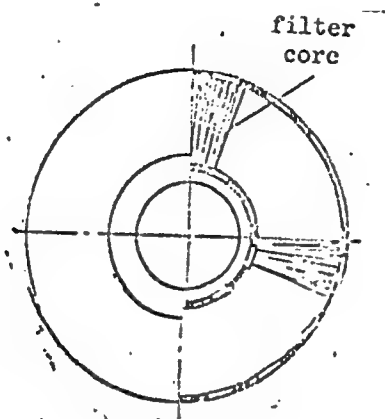
Card 1/2

UDC: 662.62:66,067,12



L 09947-67

ACC NR: AP6035821



SUB CODE: 13, 11/ SUBM DATE: 18Oct65 / ATD PRESS: 5105

ZAYEZDNYI, A.M.; EYDUKIYAVICHYUS, G.V.

Abridged representation of signals with the aid of a system of  
orthogonal functions. Radiotekhnika 18 no.11:5-12 N '63.  
(MIRA 16:12)

1. Deystvitel'nyye chleny Nauchno-tekhnicheskogo obshchestva  
radiotekhniki i elektrosvyazi imeni Popova.

L 46577-66

ACC NR: AR6016246

SOURCE CODE: UR/0058/65/000/011/H016/H016

AUTHORS: Eydukyavichyus, G.; Kayatskas, A. 2 G

TITLE: Some problems in the application of "optimal bases" for the construction of self organizing systems

SOURCE: Ref. zh. Fizika, Abs. 11Zh121

REF SOURCE: Tr. uchebn. in-tov svyazi. M-vo svyazi SSSR, vyp. 24, 1965, 33-38

TOPIC TAGS: optimal automatic control, self adaptive control, interference immunity

ABSTRACT: The authors consider questions involved in the analysis of noise with the aid of optimal bases, as applied to a self-organizing communication system. Results are presented of experiments on the determination of the interference immunity of signals of various forms when received by an ideal receiver and based on analysis of the noise. The results of the experiments confirm that the optimal bases can find application in self-organizing communication systems. [Translation of abstract]

SUB CODE: 17, 09/

Cord 1/1 hs

MAKARYAVICHYUS, V.I. [Makarevicius, V.]; ZHYUGZEDA, I.I. [Zugzda, J.];  
AMBRAZYAVICHYUS, A.B. [Ambrazevicius, A.]; EYIDUKYAVICHYUS, P.I.  
[Eidukevicius, P.]; ZHUKAUSKAS, A.A. [Zukauskas, A.]

Speed distribution in the isothermal boundary layer on a plate.  
Trudy AN Lit. SSR Ser. B no.3:91-97 '63.

(MIRA 18:3)

1. Institut energetiki i elektrotekhniki AN Litovskoy SSR.

ZHYUGZHDA, I.I. [Ziugzda, J.]; MAKARYAVICHYUS, V.I. [Makarevicius, V.];  
SHIANCHYAUSKAS, A.A. [Slanciauskas, A.]; AMBRAZYAVICHYUS, A.B.  
[Ambrazevicius, A.]; EYDUKYAVICHYUS, P.I. [Eidukevicius, P.];  
ZHUKAUSKAS, A.A. [Zukauskas, A.]

Speed and temperature distribution in the turbulent boundary  
layer on a plate. Trudy AN Lit. SSR Ser. B no.3:99-105 '63.  
(MIRA 18:3)

1. Institut energetiki i elektrotekhniki AN Litovskoy SSR.

DEPENDENCE OF THE HYDROGEN-CARBON RATIO IN LIQUID FUEL UPON ITS AVERAGE SPECIFIC GRAVITY. B. R. Eldus. UOP Library Bulletin of Abstracts, v. 21, Nov. 27, 1946, p. 191. Abstract from Journal of Applied Chemistry (U.S.S.R.), v. 18, 1945, p. 548-555.

952 organic compounds with specific gravities ranging from 0.6 to 1.2 were studied in order to determine above relationship. An equation was derived for characterization of crude oils and oils from coal and peat. Since the H/C ratio is an index of thermal stability and of suitability for engine fuel use, above relationship should be of value in quick estimation of these characteristics. Similar equations were derived for paraffins and naphthenes.

EIDUS, B. R.

2574. NATURE OF DEPENDENCE OF ELEMENTARY COMPOSITION OF PEAT TAR ON SPECIFIC GRAVITY. Eidus, B.R. (J. Appl. Chem., (U.S.S.R.), 1945, 18, 556-63). A relationship between elementary composition and specific gravity of peat tar was shown to exist by the method of arithmetic means. With increase of d. from 0.6 to 1.7, the C content drops linearly from 80% to 34% H content drops linearly from 12% to 1%, O content varies only from 16.3 to 19.9%. The following empirical equations were obtained:  $\%C = 113.22 - 46.25d$  and  $\%H = 22.39 - 12.6d$ .

C.A.

EYDUS, G. K.

Chemical Abst.  
Vol. 48 No. 6  
Mar. 25, 1954  
Cellulose and Paper

The processing of wood tars. B. A. Eldus. *Dereob-  
pererabatyayushchaya i Lesokhim. Prom.* 2, No. 11, 15-16  
(1953).—The thermochem. stabilities of wood-tar (I) dis-  
tillates was improved by distg. over comminuted wood (II)  
or charcoal (III). I from slash (IV) and pine bores (V) and  
stumps (VI) was pyrolyzed in a 2.5-l. retort: the pyrolysis  
time (in min.) (VII), temp. (VIII), yield (IX) of III after  
pyrolysis as % of II, yield of I as % of original I (X), and d.  
(XI) of III were 280, 460°, 45, 75, and 0.410 for the pyrolysis  
of IV (1 part) over II (1 part, 2 × 1 × 1 cm.); 270, 470°,  
40, 80, and — for the pyrolysis of V (1 part) over II (1 part);  
270, 470°, 35, 75, and 0.270 for the pyrolysis of VI (1 part)  
over II (1 part); and 240, 480°, 29, 8, and 0.250 for the py-  
rolysis of II alone. VII, VIII, and X for the pyrolysis of V  
(2.5 parts) over III (1 part) were 270, 470°, and 70; and for  
the pyrolysis of VI (2.5 parts) over III (1 part) were 270, 470°  
and 68. The various I were fractionated: the d., sapon.  
no. (XII) in mg./g., acid no. (XIII) in mg./g., % C<sub>11</sub>-insol.  
material, yield of fractions b. to 130°, 130-230° (A), 230-  
70° (B), 270-300° (C), and above 300° (D), and the min of  
residue and losses were: for IV, 1.10, 197, 80, 21.5, 7.8,  
9.8, 10.3, 10.2, 21.8, and 28.8; for IV after pyrolysis over  
II, 1.030, 100, 60, 6.4, 6.0, 13.7, 17.7, 8.9, 45.0, and 8.4;  
for V, 1.078, 145, 80, 23.0, 13.0, 15.5, 8.0, 4.8, 46.1, and  
16.8; for V pyrolyzed over II, 1.030, 64, 39, 4.6, 10.0, 11.4,  
10.0, 7.0, 46.0, and 11.0; for V pyrolyzed over III, 0.995,  
25, 18, 0.8, 7.5, 8.5, 9.0, 6.0, 63.0, and 6.0; for VI, 1.035,  
130, 90, 8.5, 3.0, 7.8, 6.8, 6.9, 67.0, and 8.8; for VI after  
distn. over II, 1.015, 85, 45, 1.6, 6.0, 12.0, 11.8, 6.5, 66.0,  
and 8.0; and for VI after distn. over III, 0.990, 35, 12, 0.5,  
8.0, 15.0, 8.0, 7.0, 68.0, and 4.0. XII, XIII, and the con-  
tent of phenols in A-D from V were 130, 73, and 65; 71, 43,  
and 60; 70, 26, and 40; and 23, 13, and 25; in A-D from V  
after pyrolysis over II were 115, 65, and 30; 67, 33, and 50;  
57, 27, and 40; and 10, 7, and 20; and in A-D from V after  
pyrolysis over III were 90, 63, and 45; 41, 25, and 40; 35,  
19, and 24; and 6, 1, and 7; resp. J. M. L. K. K.



EYDUS, B.R.

Motor oil from wood tars. H. K. Riden. *Proc. Roy. Soc. (London)*, 1934, 28, 14-16. (1934).  
 A study was made of the propn. of a lubricating oil for internal-combustion engines from wood tars (1) from temperate-zone pine trees. The lubricating oils tested were obtained by (1) distn. of 1 over wood charcoal to increase its thermal stability, (2) distn. of 1 over wood, and (3) the product of 2 purified with  $\text{Al}_2\text{O}_3$ . 1, the product of 2, the product of 3, the product of 3 treated with  $\text{Ba(OH)}_2$ , the product of 1, and a standard tractor lubricating oil (H) had the following amt. of pour, ether-insol. material (wt.-%): 1, 0.3, 0.1, 0.05, and the following rel. fire rates of carbonization: 1, 1.0, 0.5, 0.2, 0.1, 0.05, and 0.0. Material from 1 showed considerable tendency to crystallize than did that from 2. Materials from 2 and 3, material from 3 treated with  $\text{Ba(OH)}_2$ , and H had the following viscosity (centistokes) at 29°: 1, 2.5, 2.5, 2.5, 1.5, and at 100°: 0.5, 0.5, 0.5, 0.5, 0.5, and 0.5. The pour pt. was 150°, 168°, and 187°; and congealing point was -15°, -15°, -16°, and -17°. Material from 3 treated with  $\text{Ba(OH)}_2$  was found satisfactory when used in a 2-horsepower, 2300-c.c.m. engine. John L. Riden.

Eidus, D. M. On a mixed problem of the theory of elasticity. Doklady Akad. Nauk SSSR (N.S.) 76, 181-184 (1951) (Russian)

Consider a finite domain  $\Omega$  in three-dimensional  $(x_1, x_2, x_3)$ -space, with a piecewise smooth boundary  $\Gamma$  which consists of three parts  $\Gamma_1, \Gamma_2, \Gamma_3$ . A certain mixed problem of the theory of elasticity consists in the determination of the displacement vector  $u$ , which satisfies the equation

$$\mu \Delta u + (\mu + \lambda) \operatorname{grad} \operatorname{div} u + f = 0$$

in  $\Omega$ , and also the following boundary conditions

$$u|_{\Gamma_1} = 0, \quad u_n|_{\Gamma_2} = 0, \quad \epsilon|_{\Gamma_3} = 0, \quad \epsilon|_{\Gamma_1} = 0,$$

where  $u$  and  $\epsilon$  denote normal and tangential components, respectively, and  $\epsilon$  is the stress vector. Let  $D$  denote the class of all functions  $u = (u_1, u_2, u_3)$  with continuous first partial derivatives in  $\Omega$ , and such that

$$H(u) = \int_{\Omega} \sum_{i,j=1}^3 u_i \epsilon_{ij} d\Omega < \infty, \quad D(u) = \int_{\Omega} \sum_{i,j=1}^3 \left( \frac{\partial u_i}{\partial x_j} \right)^2 d\Omega < \infty.$$

Further, let  $D_1$  denote the subset of  $D$  consisting of all functions  $u$  satisfying  $u|_{\Gamma_1} = 0$ . Introduce a norm in  $D$ , by means of the definition

$$\|u\| = [H(u) + D(u)]^{1/2},$$

and let  $D_1$  be the closure (completion) of the space  $D_1$  with respect to this norm. According to S. G. Mihlin [Direct Methods in Mathematical Physics, Moscow-Leningrad, 1950] in order to solve the above mixed problem one need only establish that there exist positive numbers  $\alpha$  and  $\beta$  such that, for any  $u$  in  $D_1$ , the following two inequalities hold.

$$(1) \quad H(u) \leq \alpha D(u),$$

$$(2) \quad D(u) \leq \beta H(u),$$

where

$$S(u) = \int_{\Omega} \sum_{i,j=1}^3 \epsilon_{ij}^2 d\Omega, \quad s(u) = \frac{1}{2} \left( \frac{\partial u_1}{\partial x_1} + \frac{\partial u_2}{\partial x_2} \right).$$

Inequality (1) was proved by S. L. Sobolev [Mat. Sbornik N. S. 2 (4), 467-500 (1937)]. Using results of K. O. Friedrichs [Ann. of Math. (2) 48, 441-471 (1947); these Rev. 9, 255], the present author proves the inequality (2).

J. B. Diaz (College Park, Md.)

Source: Mathematical Reviews,

Vol 13 No.5

EYDUS, J.M.  
July 1954

2130. Stets, B. M., On the solution of boundary problems by the method of finite differences (in Russian), Dokl. Akad. Nauk SSSR (N.S.) 83, 194-194, 1953.

The Dirichlet boundary-value problem has been dealt with by the method of finite differences by I. A. Lysytskii [Mat. zhurnik 33, 173-204, 1953]; I. G. Prigorskii [Usp. matem. Nauk 9, 161-170, 1941]; B. Courant, K. Friedrichs, and H. Lewy [Math. Ann. 100, 39-74, 1928]. In the present paper, other boundary-value problems for the elliptic equation

$$L u = \sum_{i,j=1}^n \frac{\partial}{\partial x_i} \left( a_{ij}(x) \frac{\partial u}{\partial x_j} \right) = f(x), \quad a_{ij} = a_{ji}$$

are treated by the method of finite differences. Particular attention is given to the boundary-value problem where the boundary condition is

$$P u = \sum_{i,j=1}^n a_{ij} \frac{\partial u}{\partial x_i} \cos(\nu, x_j) = 0$$

It is remarked that a similar procedure is applicable to mixed boundary problems and eigenvalue problems for the same operator  $L$ .

*Journal of Mathematical Sciences*

J. B. Diaz, USA

7  
0  
0  
0

6-24-54  
LL

EYDUS, D. M.

PR 201522

USSR/Mathematics - Eigenfunctions

21 Mar 52

"Continuous Dependence of Eigenfunctions on  
Region," D.M. Eydus

"Dok Ak Nauk SSSR" Vol 83, No 3 pp 365-367

Considers a finite region  $O$  with boundaries  $G$  in  
a space of variables  $x_m$ ; and the problem concerning  
the eigenvalues of the elliptic-type operator  
 $Lu = (d/dx_1) (a_{1j} du/dx_j) (ij\text{-summed, } 1 \text{ to } m)$  for  
the boundary condition  $u|_G = 0$ . Submitted by  
Acad V.I. Smirnov 21 Jan 52.

227T53

EYDUS P.M.

Applied Mechanics Reviews  
Vol. 7 No. 4  
Apr. 1954  
Theoretical and Experimental Methods

1008. Eidus, D. M., Estimate of the modulus of eigenfunc-  
tions (in Russian). *Doklady Akad. Nauk SSSR* (N.S.), 66, 4, 973  
974, June 1953

Paper deals with eigenvalues  $\lambda_k$  and normalized characteristic  
functions  $u_k$  of the Helmholtz equation  $\Delta u + \lambda u = 0$  in a finite  
region  $\Omega$  of two-dimensional space and not zero values at the  
boundary  $\Gamma$ . In this case it is known that  $u_k \in C^1(\Omega)$  where  
 $k = (n/4) + 1$  and  $n$  is constant.

Author establishes this inequality also for  $k = n/4$  and, for  
arbitrary part  $\Omega_k$  of  $\Omega$ , lying within  $\Omega$ , he traces the exactness of  
the estimate mentioned above up to the value  $k = (n/4 - 1)/2$ .  
In this case, however, the number  $c$  depends upon  $\Omega_k$ .

Paper is of mathematical character, but the results have im-  
portance in the advanced theory of wave motion and in other  
fields of mathematical physics. *A. A. ...*

1008

*Eydus, D.M.*  
USSR/Mathematics - Elasticity Theory

FD-829

Card 1/1 : Pub. 64 - 4/10  
Author : Eydus, D. M. (Leningrad)  
Title : The contact problem of elasticity theory  
Periodical : Mat. sbor., 34(76), 429-440, May-Jun 1954  
Abstract : The problem examined is that of finding in a bounded region in three-dimensional space a displacement vector with projections on the coordinate axes which satisfies a certain equation and three boundary conditions. The author proves five theorems on inequalities using in the proofs lemmas developed earlier in the article.  
Institution : --  
Submitted : December 18, 1952

*Eydus, D.M.*

USSR/Mathematics - Boundary problems

Card 1/1 Pub. 22 - 6/60

Authors : Eydus, D. M.

Title : ~~Boundary problem of equation~~ The boundary problem of equation  $\Delta u + \lambda^2 u = 0$

Periodical : Dok. AN SSSR 100/4, 631-633, Feb 1, 1955

Abstract : A solution is sought for equation:  $\Delta u + \lambda^2 u = 0$ . A solution is first considered for the above equation under the following boundary conditions:  $u|_S = 0$ . Then, the boundary conditions  $u|_S = \psi$ , are used assuming that  $\psi(x)$  is a continuous function over surface S. The author recommends expanding the function  $\psi$  along its eigen functions  $\theta_m$ :  $\psi = \sum_{m=1}^{\infty} (\psi, \theta_m) \theta_m$ , then a solution of the boundary problem  $u(x)$ , where  $x \in \Omega$ , can be found and expressed as follows:

$$u(x) = \sum_{m=1}^{\infty} \frac{(\psi, \theta_m)}{\mu_m} \int_S \frac{\sin \lambda_1 r_{xy}}{r_{xy}} \theta_m(y) dS_y.$$

Institution : Leningrad Institute of Aircraft Instrument Construction

Presented by: Academician V. I. Smirnov, November 17, 1954

EYDUS D M

1-F/W

*math*

Eidus, D. M. On the existence of the normal derivative of the solution of the Dirichlet problem. Vestnik

Leningrad Univ 11:125-126 (1966) 47 (56) (Russian)

Let  $G$  be a finite region in  $E_n$  with boundary  $S$  oriented by a continuous orientation. Let  $q$  be a function on  $S$  parametrized by a continuous parametrization. The existence of the normal derivative of functions containing  $q$  is proved. The norm is defined by

$$\|q\|^2 = \int_S (q^2 + \text{grad}_S^2 q) dS,$$

where  $\text{grad}_S q$  is the surface gradient of  $q$ , the norm in  $D(S)$ . Let  $W_2^0(S)$  denote the space obtained by the closure of the linear manifold  $L(S)$  with respect to the norm  $\|q\|$ . It is shown that if the function  $q \in W_2^0(S)$ , then the harmonic function  $u$  in  $G$  satisfies with  $q$  on  $S$  has the property that the normal derivative  $\frac{\partial u}{\partial n}$  exists almost everywhere on  $S$ . (English summary)

1967a, 1967b, 1967c, 1967d, 1967e, 1967f, 1967g, 1967h, 1967i, 1967j, 1967k, 1967l, 1967m, 1967n, 1967o, 1967p, 1967q, 1967r, 1967s, 1967t, 1967u, 1967v, 1967w, 1967x, 1967y, 1967z, 1968a, 1968b, 1968c, 1968d, 1968e, 1968f, 1968g, 1968h, 1968i, 1968j, 1968k, 1968l, 1968m, 1968n, 1968o, 1968p, 1968q, 1968r, 1968s, 1968t, 1968u, 1968v, 1968w, 1968x, 1968y, 1968z, 1969a, 1969b, 1969c, 1969d, 1969e, 1969f, 1969g, 1969h, 1969i, 1969j, 1969k, 1969l, 1969m, 1969n, 1969o, 1969p, 1969q, 1969r, 1969s, 1969t, 1969u, 1969v, 1969w, 1969x, 1969y, 1969z, 1970a, 1970b, 1970c, 1970d, 1970e, 1970f, 1970g, 1970h, 1970i, 1970j, 1970k, 1970l, 1970m, 1970n, 1970o, 1970p, 1970q, 1970r, 1970s, 1970t, 1970u, 1970v, 1970w, 1970x, 1970y, 1970z, 1971a, 1971b, 1971c, 1971d, 1971e, 1971f, 1971g, 1971h, 1971i, 1971j, 1971k, 1971l, 1971m, 1971n, 1971o, 1971p, 1971q, 1971r, 1971s, 1971t, 1971u, 1971v, 1971w, 1971x, 1971y, 1971z, 1972a, 1972b, 1972c, 1972d, 1972e, 1972f, 1972g, 1972h, 1972i, 1972j, 1972k, 1972l, 1972m, 1972n, 1972o, 1972p, 1972q, 1972r, 1972s, 1972t, 1972u, 1972v, 1972w, 1972x, 1972y, 1972z, 1973a, 1973b, 1973c, 1973d, 1973e, 1973f, 1973g, 1973h, 1973i, 1973j, 1973k, 1973l, 1973m, 1973n, 1973o, 1973p, 1973q, 1973r, 1973s, 1973t, 1973u, 1973v, 1973w, 1973x, 1973y, 1973z, 1974a, 1974b, 1974c, 1974d, 1974e, 1974f, 1974g, 1974h, 1974i, 1974j, 1974k, 1974l, 1974m, 1974n, 1974o, 1974p, 1974q, 1974r, 1974s, 1974t, 1974u, 1974v, 1974w, 1974x, 1974y, 1974z, 1975a, 1975b, 1975c, 1975d, 1975e, 1975f, 1975g, 1975h, 1975i, 1975j, 1975k, 1975l, 1975m, 1975n, 1975o, 1975p, 1975q, 1975r, 1975s, 1975t, 1975u, 1975v, 1975w, 1975x, 1975y, 1975z, 1976a, 1976b, 1976c, 1976d, 1976e, 1976f, 1976g, 1976h, 1976i, 1976j, 1976k, 1976l, 1976m, 1976n, 1976o, 1976p, 1976q, 1976r, 1976s, 1976t, 1976u, 1976v, 1976w, 1976x, 1976y, 1976z, 1977a, 1977b, 1977c, 1977d, 1977e, 1977f, 1977g, 1977h, 1977i, 1977j, 1977k, 1977l, 1977m, 1977n, 1977o, 1977p, 1977q, 1977r, 1977s, 1977t, 1977u, 1977v, 1977w, 1977x, 1977y, 1977z, 1978a, 1978b, 1978c, 1978d, 1978e, 1978f, 1978g, 1978h, 1978i, 1978j, 1978k, 1978l, 1978m, 1978n, 1978o, 1978p, 1978q, 1978r, 1978s, 1978t, 1978u, 1978v, 1978w, 1978x, 1978y, 1978z, 1979a, 1979b, 1979c, 1979d, 1979e, 1979f, 1979g, 1979h, 1979i, 1979j, 1979k, 1979l, 1979m, 1979n, 1979o, 1979p, 1979q, 1979r, 1979s, 1979t, 1979u, 1979v, 1979w, 1979x, 1979y, 1979z, 1980a, 1980b, 1980c, 1980d, 1980e, 1980f, 1980g, 1980h, 1980i, 1980j, 1980k, 1980l, 1980m, 1980n, 1980o, 1980p, 1980q, 1980r, 1980s, 1980t, 1980u, 1980v, 1980w, 1980x, 1980y, 1980z, 1981a, 1981b, 1981c, 1981d, 1981e, 1981f, 1981g, 1981h, 1981i, 1981j, 1981k, 1981l, 1981m, 1981n, 1981o, 1981p, 1981q, 1981r, 1981s, 1981t, 1981u, 1981v, 1981w, 1981x, 1981y, 1981z, 1982a, 1982b, 1982c, 1982d, 1982e, 1982f, 1982g, 1982h, 1982i, 1982j, 1982k, 1982l, 1982m, 1982n, 1982o, 1982p, 1982q, 1982r, 1982s, 1982t, 1982u, 1982v, 1982w, 1982x, 1982y, 1982z, 1983a, 1983b, 1983c, 1983d, 1983e, 1983f, 1983g, 1983h, 1983i, 1983j, 1983k, 1983l, 1983m, 1983n, 1983o, 1983p, 1983q, 1983r, 1983s, 1983t, 1983u, 1983v, 1983w, 1983x, 1983y, 1983z, 1984a, 1984b, 1984c, 1984d, 1984e, 1984f, 1984g, 1984h, 1984i, 1984j, 1984k, 1984l, 1984m, 1984n, 1984o, 1984p, 1984q, 1984r, 1984s, 1984t, 1984u, 1984v, 1984w, 1984x, 1984y, 1984z, 1985a, 1985b, 1985c, 1985d, 1985e, 1985f, 1985g, 1985h, 1985i, 1985j, 1985k, 1985l, 1985m, 1985n, 1985o, 1985p, 1985q, 1985r, 1985s, 1985t, 1985u, 1985v, 1985w, 1985x, 1985y, 1985z, 1986a, 1986b, 1986c, 1986d, 1986e, 1986f, 1986g, 1986h, 1986i, 1986j, 1986k, 1986l, 1986m, 1986n, 1986o, 1986p, 1986q, 1986r, 1986s, 1986t, 1986u, 1986v, 1986w, 1986x, 1986y, 1986z, 1987a, 1987b, 1987c, 1987d, 1987e, 1987f, 1987g, 1987h, 1987i, 1987j, 1987k, 1987l, 1987m, 1987n, 1987o, 1987p, 1987q, 1987r, 1987s, 1987t, 1987u, 1987v, 1987w, 1987x, 1987y, 1987z, 1988a, 1988b, 1988c, 1988d, 1988e, 1988f, 1988g, 1988h, 1988i, 1988j, 1988k, 1988l, 1988m, 1988n, 1988o, 1988p, 1988q, 1988r, 1988s, 1988t, 1988u, 1988v, 1988w, 1988x, 1988y, 1988z, 1989a, 1989b, 1989c, 1989d, 1989e, 1989f, 1989g, 1989h, 1989i, 1989j, 1989k, 1989l, 1989m, 1989n, 1989o, 1989p, 1989q, 1989r, 1989s, 1989t, 1989u, 1989v, 1989w, 1989x, 1989y, 1989z, 1990a, 1990b, 1990c, 1990d, 1990e, 1990f, 1990g, 1990h, 1990i, 1990j, 1990k, 1990l, 1990m, 1990n, 1990o, 1990p, 1990q, 1990r, 1990s, 1990t, 1990u, 1990v, 1990w, 1990x, 1990y, 1990z, 1991a, 1991b, 1991c, 1991d, 1991e, 1991f, 1991g, 1991h, 1991i, 1991j, 1991k, 1991l, 1991m, 1991n, 1991o, 1991p, 1991q, 1991r, 1991s, 1991t, 1991u, 1991v, 1991w, 1991x, 1991y, 1991z, 1992a, 1992b, 1992c, 1992d, 1992e, 1992f, 1992g, 1992h, 1992i, 1992j, 1992k, 1992l, 1992m, 1992n, 1992o, 1992p, 1992q, 1992r, 1992s, 1992t, 1992u, 1992v, 1992w, 1992x, 1992y, 1992z, 1993a, 1993b, 1993c, 1993d, 1993e, 1993f, 1993g, 1993h, 1993i, 1993j, 1993k, 1993l, 1993m, 1993n, 1993o, 1993p, 1993q, 1993r, 1993s, 1993t, 1993u, 1993v, 1993w, 1993x, 1993y, 1993z, 1994a, 1994b, 1994c, 1994d, 1994e, 1994f, 1994g, 1994h, 1994i, 1994j, 1994k, 1994l, 1994m, 1994n, 1994o, 1994p, 1994q, 1994r, 1994s, 1994t, 1994u, 1994v, 1994w, 1994x, 1994y, 1994z, 1995a, 1995b, 1995c, 1995d, 1995e, 1995f, 1995g, 1995h, 1995i, 1995j, 1995k, 1995l, 1995m, 1995n, 1995o, 1995p, 1995q, 1995r, 1995s, 1995t, 1995u, 1995v, 1995w, 1995x, 1995y, 1995z, 1996a, 1996b, 1996c, 1996d, 1996e, 1996f, 1996g, 1996h, 1996i, 1996j, 1996k, 1996l, 1996m, 1996n, 1996o, 1996p, 1996q, 1996r, 1996s, 1996t, 1996u, 1996v, 1996w, 1996x, 1996y, 1996z, 1997a, 1997b, 1997c, 1997d, 1997e, 1997f, 1997g, 1997h, 1997i, 1997j, 1997k, 1997l, 1997m, 1997n, 1997o, 1997p, 1997q, 1997r, 1997s, 1997t, 1997u, 1997v, 1997w, 1997x, 1997y, 1997z, 1998a, 1998b, 1998c, 1998d, 1998e, 1998f, 1998g, 1998h, 1998i, 1998j, 1998k, 1998l, 1998m, 1998n, 1998o, 1998p, 1998q, 1998r, 1998s, 1998t, 1998u, 1998v, 1998w, 1998x, 1998y, 1998z, 1999a, 1999b, 1999c, 1999d, 1999e, 1999f, 1999g, 1999h, 1999i, 1999j, 1999k, 1999l, 1999m, 1999n, 1999o, 1999p, 1999q, 1999r, 1999s, 1999t, 1999u, 1999v, 1999w, 1999x, 1999y, 1999z, 2000a, 2000b, 2000c, 2000d, 2000e, 2000f, 2000g, 2000h, 2000i, 2000j, 2000k, 2000l, 2000m, 2000n, 2000o, 2000p, 2000q, 2000r, 2000s, 2000t, 2000u, 2000v, 2000w, 2000x, 2000y, 2000z, 2001a, 2001b, 2001c, 2001d, 2001e, 2001f, 2001g, 2001h, 2001i, 2001j, 2001k, 2001l, 2001m, 2001n, 2001o, 2001p, 2001q, 2001r, 2001s, 2001t, 2001u, 2001v, 2001w, 2001x, 2001y, 2001z, 2002a, 2002b, 2002c, 2002d, 2002e, 2002f, 2002g, 2002h, 2002i, 2002j, 2002k, 2002l, 2002m, 2002n, 2002o, 2002p, 2002q, 2002r, 2002s, 2002t, 2002u, 2002v, 2002w, 2002x, 2002y, 2002z, 2003a, 2003b, 2003c, 2003d, 2003e, 2003f, 2003g, 2003h, 2003i, 2003j, 2003k, 2003l, 2003m, 2003n, 2003o, 2003p, 2003q, 2003r, 2003s, 2003t, 2003u, 2003v, 2003w, 2003x, 2003y, 2003z, 2004a, 2004b, 2004c, 2004d, 2004e, 2004f, 2004g, 2004h, 2004i, 2004j, 2004k, 2004l, 2004m, 2004n, 2004o, 2004p, 2004q, 2004r, 2004s, 2004t, 2004u, 2004v, 2004w, 2004x, 2004y, 2004z, 2005a, 2005b, 2005c, 2005d, 2005e, 2005f, 2005g, 2005h, 2005i, 2005j, 2005k, 2005l, 2005m, 2005n, 2005o, 2005p, 2005q, 2005r, 2005s, 2005t, 2005u, 2005v, 2005w, 2005x, 2005y, 2005z, 2006a, 2006b, 2006c, 2006d, 2006e, 2006f, 2006g, 2006h, 2006i, 2006j, 2006k, 2006l, 2006m, 2006n, 2006o, 2006p, 2006q, 2006r, 2006s, 2006t, 2006u, 2006v, 2006w, 2006x, 2006y, 2006z, 2007a, 2007b, 2007c, 2007d, 2007e, 2007f, 2007g, 2007h, 2007i, 2007j, 2007k, 2007l, 2007m, 2007n, 2007o, 2007p, 2007q, 2007r, 2007s, 2007t, 2007u, 2007v, 2007w, 2007x, 2007y, 2007z, 2008a, 2008b, 2008c, 2008d, 2008e, 2008f, 2008g, 2008h, 2008i, 2008j, 2008k, 2008l, 2008m, 2008n, 2008o, 2008p, 2008q, 2008r, 2008s, 2008t, 2008u, 2008v, 2008w, 2008x, 2008y, 2008z, 2009a, 2009b, 2009c, 2009d, 2009e, 2009f, 2009g, 2009h, 2009i, 2009j, 2009k, 2009l, 2009m, 2009n, 2009o, 2009p, 2009q, 2009r, 2009s, 2009t, 2009u, 2009v, 2009w, 2009x, 2009y, 2009z, 2010a, 2010b, 2010c, 2010d, 2010e, 2010f, 2010g, 2010h, 2010i, 2010j, 2010k, 2010l, 2010m, 2010n, 2010o, 2010p, 2010q, 2010r, 2010s, 2010t, 2010u, 2010v, 2010w, 2010x, 2010y, 2010z, 2011a, 2011b, 2011c, 2011d, 2011e, 2011f, 2011g, 2011h, 2011i, 2011j, 2011k, 2011l, 2011m, 2011n, 2011o, 2011p, 2011q, 2011r, 2011s, 2011t, 2011u, 2011v, 2011w, 2011x, 2011y, 2011z, 2012a, 2012b, 2012c, 2012d, 2012e, 2012f, 2012g, 2012h, 2012i, 2012j, 2012k, 2012l, 2012m, 2012n, 2012o, 2012p, 2012q, 2012r, 2012s, 2012t, 2012u, 2012v, 2012w, 2012x, 2012y, 2012z, 2013a, 2013b, 2013c, 2013d, 2013e, 2013f, 2013g, 2013h, 2013i, 2013j, 2013k, 2013l, 2013m, 2013n, 2013o, 2013p, 2013q, 2013r, 2013s, 2013t, 2013u, 2013v, 2013w, 2013x, 2013y, 2013z, 2014a, 2014b, 2014c, 2014d, 2014e, 2014f, 2014g, 2014h, 2014i, 2014j, 2014k, 2014l, 2014m, 2014n, 2014o, 2014p, 2014q, 2014r, 2014s, 2014t, 2014u, 2014v, 2014w, 2014x, 2014y, 2014z, 2015a, 2015b, 2015c, 2015d, 2015e, 2015f, 2015g, 2015h, 2015i, 2015j, 2015k, 2015l, 2015m, 2015n, 2015o, 2015p, 2015q, 2015r, 2015s, 2015t, 2015u, 2015v, 2015w, 2015x, 2015y, 2015z, 2016a, 2016b, 2016c, 2016d, 2016e, 2016f, 2016g, 2016h, 2016i, 2016j, 2016k, 2016l, 2016m, 2016n, 2016o, 2016p, 2016q, 2016r, 2016s, 2016t, 2016u, 2016v, 2016w, 2016x, 2016y, 2016z, 2017a, 2017b, 2017c, 2017d, 2017e, 2017f, 2017g, 2017h, 2017i, 2017j, 2017k, 2017l, 2017m, 2017n, 2017o, 2017p, 2017q, 2017r, 2017s, 2017t, 2017u, 2017v, 2017w, 2017x, 2017y, 2017z, 2018a, 2018b, 2018c, 2018d, 2018e, 2018f, 2018g, 2018h, 2018i, 2018j, 2018k, 2018l, 2018m, 2018n, 2018o, 2018p, 2018q, 2018r, 2018s, 2018t, 2018u, 2018v, 2018w, 2018x, 2018y, 2018z, 2019a, 2019b, 2019c, 2019d, 2019e, 2019f, 2019g, 2019h, 2019i, 2019j, 2019k, 2019l, 2019m, 2019n, 2019o, 2019p, 2019q, 2019r, 2019s, 2019t, 2019u, 2019v, 2019w, 2019x, 2019y, 2019z, 2020a, 2020b, 2020c, 2020d, 2020e, 2020f, 2020g, 2020h, 2020i, 2020j, 2020k, 2020l, 2020m, 2020n, 2020o, 2020p, 2020q, 2020r, 2020s, 2020t, 2020u, 2020v, 2020w, 2020x, 2020y, 2020z, 2021a, 2021b, 2021c, 2021d, 2021e, 2021f, 2021g, 2021h, 2021i, 2021j, 2021k, 2021l, 2021m, 2021n, 2021o, 2021p, 2021q, 2021r, 2021s, 2021t, 2021u, 2021v, 2021w, 2021x, 2021y, 2021z, 2022a, 2022b, 2022c, 2022d, 2022e, 2022f, 2022g, 2022h, 2022i, 2022j, 2022k, 2022l, 2022m, 2022n, 2022o, 2022p, 2022q, 2022r, 2022s, 2022t, 2022u, 2022v, 2022w, 2022x, 2022y, 2022z, 2023a, 2023b, 2023c, 2023d, 2023e, 2023f, 2023g, 2023h, 2023i, 2023j, 2023k, 2023l, 2023m, 2023n, 2023o, 2023p, 2023q, 2023r, 2023s, 2023t, 2023u, 2023v, 2023w, 2023x, 2023y, 2023z, 2024a, 2024b, 2024c, 2024d, 2024e, 2024f, 2024g, 2024h, 2024i, 2024j, 2024k, 2024l, 2024m, 2024n, 2024o, 2024p, 2024q, 2024r, 2024s, 2024t, 2024u, 2024v, 2024w, 2024x, 2024y, 2024z, 2025a, 2025b, 2025c, 2025d, 2025e, 2025f, 2025g, 2025h, 2025i, 2025j, 2025k, 2025l, 2025m, 2025n, 2025o, 2025p, 2025q, 2025r, 2025s, 2025t, 2025u, 2025v, 2025w, 2025x, 2025y, 2025z, 2026a, 2026b, 2026c, 2026d, 2026e, 2026f, 2026g, 2026h, 2026i, 2026j, 2026k, 2026l, 2026m, 2026n, 2026o, 2026p, 2026q, 2026r, 2026s, 2026t, 2026u, 2026v, 2026w, 2026x, 2026y, 2026z, 2027a, 2027b, 2027c, 2027d, 2027e, 2027f, 2027g, 2027h, 2027i, 2027j, 2027k, 2027l, 2027m, 2027n, 2027o, 2027p, 2027q, 2027r, 2027s, 2027t, 2027u, 2027v, 2027w, 2027x, 2027y, 2027z, 2028a, 2028b, 2028c, 2028d, 2028e, 2028f, 2028g, 2028h, 2028i, 2028j, 2028k, 2028l, 2028m, 2028n, 2028o, 2028p, 2028q, 2028r, 2028s, 2028t, 2028u, 2028v, 2028w, 2028x, 2028y, 2028z, 2029a, 2029b, 2029c, 2029d, 2029e, 2029f, 2029g, 2029h, 2029i, 2029j, 2029k, 2029l, 2029m, 2029n, 2029o, 2029p, 2029q, 2029r, 2029s, 2029t, 2029u, 2029v, 2029w, 2029x, 2029y, 2029z, 2030a, 2030b, 2030c, 2030d, 2030e, 2030f, 2030g, 2030h, 2030i, 2030j, 2030k, 2030l, 2030m, 2030n, 2030o, 2030p, 2030q, 2030r



Eydus, D. M.

USSR/ Mathematics

Card 1/1 Pub. 22 - 9/54

Authors : Eydus, D. M.

Title : Evaluations of Green function derivatives

Periodical : Dok. AN SSSR 106/2, 207-210, Jan 11, 1956

Abstract : A proof is presented that the derivatives of Green's function may be evaluated by the same principle which has been used in evaluating derivatives of potential of a simple layer of the density satisfying Lipshits' conditions. Three references: 2 USSR and 1 Swiss. (1919-1953).

Institution : Leningrad Institute of Aviation Instrument Manufacture

Presented by: Academician V. I. Smirnov, October 7, 1955

EJDUS, D.M.

SUBJECT USSR/MATHEMATICS/Differential equations CARD 1/1 PG - 314  
 AUTHOR EJDUS D.M.  
 TITLE Some inequations for eigenfunctions.  
 PERIODICAL Doklady Akad. Nauk 107, 796-798 (1956)  
 reviewed 10/1956

Let  $\lambda_n$  be the eigenvalue with the number  $n$  of the equation  $\Delta u + \lambda u = 0$  in the  $m$ -dimensional finite region  $\Omega$  with the boundary surface  $S$  for the boundary value condition  $u|_S = 0$ . Let  $u_n$  be the corresponding eigenfunction which is normalized by the condition  $\int_{\Omega} u_n^2 d\Omega = 1$ . Let  $D^k$  be the operation of the  $k$ -times differentiation with respect to the coordinates of the point  $x$ . Under the assumption that for  $k = 0$  the surface  $S$  is  $(k+1)$ -times continuously differentiable,  $k \geq 1$ , the author proves the inequation

$$|D^k u_n(x)| \leq c_k \lambda_n^{\frac{m-1}{4}} (\ln \lambda_n)^{1/2},$$

which in  $\Omega$  is valid for all  $n$  for which  $\lambda_n > 1$ . Some further similar inequations are mentioned.

AUTHOR: Eydus, D.M. (Leningrad) SOV/39-45-4-4/7  
 TITLE: Inequations for the Green's Function (Neravenstva dlya funktsii Grina)  
 PERIODICAL: Matematicheskiy sbornik, 1958, Vol 45, Nr 4, pp 455-470 (USSR)  
 ABSTRACT: Let  $\Omega$  be a finite open domain of the three-dimensional space, let  $S$  be the boundary of  $\Omega$ . The author considers the Green's function  $G(x,y)$  of the Laplace operator for the Dirichlet problem in  $\Omega$ . It is

$$G(x,y) = \frac{1}{4\pi r_{xy}} + g(x,y),$$

where  $g(x,y)$  is the regular part of  $G(x,y)$ . Let  $Dg(x,y)$  and  $D^2g(x,y)$  respectively, denote the first and second, respectively, derivative of  $g(x,y)$  with respect to one of the variables. Let

$$g_1(x,y) = \frac{1}{8\pi^2} \int_S \frac{1}{r_{xt}} \frac{\partial}{\partial n_t} \left( \frac{1}{r_{ty}} \right) dS_t,$$

Card 1/2

where  $n_t$  is the outer normal of  $S$  in the point  $t$ . Under certain

Inequations for the Green's Function

SOV/39-45-4-4/7

assumptions on S (it has to be a Lyapunov-surface with exponents  $\lambda$ )  
the author proves the inequations

$$|g_1(x,y)| \leq c_1 \frac{1}{r_{xy}}, \quad |g(x,y) - g_1(x,y)| \leq c_2 r_{xy}^{\lambda-1}$$

and furthermore

$$|Dg_1(x,y)| \leq c_3 r_{xy}^{-2}, \quad |D(g - g_1)| \leq c_4 (\lambda') r_{xy}^{\lambda'-2}, \quad \lambda' < \lambda$$

$$|D^2 g_1(x,y)| \leq c_5 r_{xy}^{-3}, \quad |D^2(g - g_1)| \leq c_6(\varepsilon) r_{xy}^{-2-\varepsilon},$$

where in the last inequations  $\varepsilon > 0$  may be arbitrary, but it has  
to be  $\lambda = 1$  and some further difficult demands are to be satisfied  
by S.

From these inequations there follows the inequation

$$|Dg(x,y)| \leq c r_{xy}^{-2}$$

announced in an earlier paper of the author [Ref 2].

There are 3 references, 2 of which are Soviet, and 1 Polish.

SUBMITTED: March 11, 1957

Card 2/2

1. Topology 2. Functions - Theory